

TRAIL & LANDSCAPE

DEDICATED TO NATURAL HISTORY AND CONSERVATION



TRAIL & LANDSCAPE

Publications Mail Registration # 09798

Editor

Annie Bélair (annie.TandL@gmail.com)

Copy Editor

Diane Kitching

Proofreader

Barry Cottam

Mail-out Coordinator

Karen McLachlan Hamilton

Mailing Team: Annie Bélair, Kerri Keith, Martin Messier



Ottawa Field-Naturalists' Club
Club des naturalistes d'Ottawa

— Founded 1863 (current incorporation 1879) —
Jakob Mueller, President

Objectives of the Club: To promote the appreciation, preservation, and conservation of Canada's natural heritage; to encourage investigation and publish the results of research in all fields of natural history and to diffuse the information on these fields as widely as possible; to support and co-operate with organizations engaged in preserving, maintaining or restoring environments of high quality for living things.

Club Publications: *The Canadian Field-Naturalist*, a peer-reviewed science quarterly devoted to reporting research in all fields of natural history relevant to Canada, and *Trail & Landscape*, a quarterly journal/newsletter providing articles on the natural history of the Ottawa Valley and on Club activities.

Field Trips, Lectures and other natural history activities are arranged for members; see website at ofnc.ca/ofnc-calendar.

Annual Membership Fees: Individual \$40

Family \$45

Student \$20

Hard copy of *The Canadian Field-Naturalist* for OFNC members: \$30 per year (volume)

Subscriptions to *Trail & Landscape* for libraries and institutions: \$40 per year (volume)

Single copies of *Trail & Landscape*, Volume 51(3) onwards: \$6 each (plus postage)

Single copies of *Trail & Landscape*, up to Volume 51(2): free (plus postage)

THE OTTAWA FIELD-NATURALISTS' CLUB

Box 35069, Westgate P.O.

Ottawa, Ontario K1Z 1A2

Views expressed in *Trail & Landscape* are not necessarily those of the OFNC.



On the cover:

Young Northern Harrier showing its orange brown colour in the sunlight. Photo by Al Short.
See "Harriers on Cameron Harvey Drive" on page 17.

TRAIL & LANDSCAPE

Volume 57 Number 1, January-March 2023

Club News

- 3 **WELCOME NEW MEMBERS**
Kerri Keith
- 4 **CELEBRATING AN ICON:
SHEILA THOMSON AT 100**
Daniel F. Brunton
- 5 **VOLUNTEER OPPORTUNITY**
OFNC Awards Committee
- 6 **FROM A READER**
Peter Croal
- 7 **FROM TEENAGERS THE
OFNC SPONSORED**
Genevieve Leroux, Gabriel McMurren

OFNC Research Grants

- 8 **WHY DO FRESHWATER TURTLES
AGGREGATE AT BASKING SITES?**
Malcolm Fenech
- 12 **SURVEYING FOR AT-RISK SPECIES
OF FROGS AND TURTLES**
David Seburn

Features

- 17 **HARRIERS ON CAMERON
HARVEY DRIVE**
Al Short
- 24 **A HISTORY OF THE OTTAWA RIVER
OVER MILLIONS OF YEARS!**
Nancy Darcovich



TRAIL & LANDSCAPE

Volume 57 Number 1, January-March 2023

Features – Continued

**51 EARLY 19th CENTURY BOTANISTS
AND THEIR DISCOVERIES IN
THE OTTAWA AREA**

Daniel F. Brunton

68 A QUICK DATE WITH SATURN

Annie Bélair

**69 MERLIN PREYS ON
SPOTTED SANDPIPER**

Manson Fleguel

**70 DRAGONFLIES OF THE
OTTAWA-GATINEAU REGION.
SPECIES PROFILE 14:
THE CANADA DARNER**

(Aeshna canadensis)

Chris Traynor

Poetry and Games

**78 OFNC WARBLER
CROSSWORD PUZZLE**

Gord Robertson

79 GRAY SQUIRREL IN WINTER

Linda Jeays

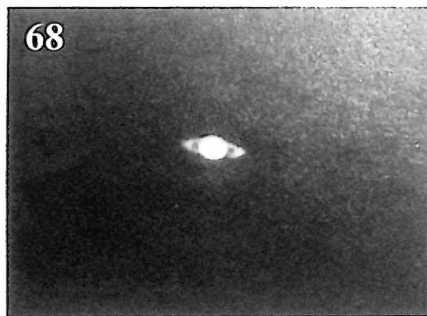
Coming Events

80 COMING EVENTS

51



68



70





Welcome New Members

Ottawa Area

Mary Jane Armstrong
Christine Burke
Carol Burnup
BL Cloutier
Julie Fairweather & Family
Susan Guirey-Pierce & Family
Patrick Jarmuske & Family
Jenna Kentel
Geneviève Larouche
Lyne Leclerc

Karin Lindsay & Family
Morgan McAteer
Catherine McKercher/V. Mosco
Karen Metcalfe
Linda Murphy & Family
Tyson Shank
Amanda Spink & Family
Simone Ueberfeldt
Matt Waghorn
Jan Wojcik

Ontario

Wendell Block & Family
Renzo Dalla Via
Donata Frank
Debra Lloyd
Robert Routledge
Susan Wing

Gatineau Area

Harold Blais & Family
Fatem-Zahra Zouhari

Kerri Keith
Chair, Membership Committee
November 2022 🐾

In memoriam

Pearl Peterkin (April 4, 1928 - September 7, 2022)

The OFNC is saddened to hear of the passing of former member Pearl Peterkin. She was a member from 1995 to 2015, served on the Fletcher Wildlife Garden and Education and Publicity Committees, and was chair of the latter for three years. She was the recipient of the OFNC Member of the Year award for 2003 for "outstanding contributions to the Education and Publicity Committee". You can find the citation in *The Canadian Field-Naturalist* 118: 647-648.

Celebrating an icon: 100 Sheila Thomson at

Daniel F. Brunton

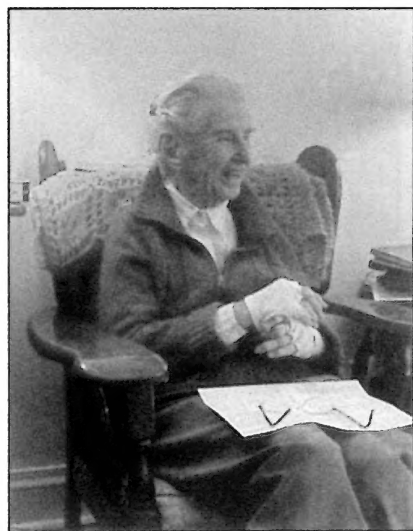
"Don't complain unless you are willing to do something about it", she memorably stated long ago. For decades, Sheila Thomson, OFNC Past-President (1971-1972), Honorary Member (1981) and longest-serving member (since 1943), has lived by and inspired others with those words. This was certainly the case when she joined Anne Hanes and past-President and future Honorary Member Ted Mosquin in transforming the moribund OFNC Newsletter into *Trail & Landscape*. It immediately became a successful vehicle for educating and motivating the membership. It also was the primary incentive for hundreds of Ottawa area residents to join the OFNC in the late 60s and early 70s. Sheila came up with the name too, through she recently expressed a preference for Anne Hanes' whimsical suggestion ... *Muddy Boots!*



*This was taken in 1966 at Meech Creek. Sheila and her husband Harry, who was always such a big part of her activities, have set the timer on the camera to have their picture taken in front of the campfire.
Scan of slide provided by Eleanor Thomson.*

Her "get on with it" approach to the increasingly serious problem of Gatineau Park mismanagement in the early 1960s caused her to mount a campaign with like-minded folks within and beyond the OFNC (notably again including Ted Mosquin) to take on the National Capital Commission. Their well-researched and clearly expressed arguments forced the seemingly immovable bureaucracy that was (and often still is!) the NCC to substantially clean up its act regarding Gatineau Park. In the process, this led to the creation of the Ottawa Chapter of the Canadian Parks & Wilderness Society.

Sheila has always been an active, insightful and collaborative field naturalist, ready and willing to share her knowledge and enthusiasm with anyone who is curious about the natural world. And that has always especially applied to young people. This passionate curiosity was instilled in her at a young age. An article in *The Canadian Field-Naturalist* documented her discovery of Ring-necked Pheasant eggs in an otherwise normal Ruffed Grouse nest in western Ottawa. The author of the article, renowned biologist and future OFNC Honorary Member C.H.D Clarke, noted that the discovery had been made by then 16-year-old "Sheila Hoare [now Thomson] on May 9, 1939"(!). She has never looked back.



Sheila on November 18, 2022.
Photo by D.F. Brunton.

Sheila celebrates her 100th birthday in late January 2023. She is still demonstrating an unrestrained commitment to and curiosity about the natural world. In a recent conversation we talked of a field trip a bunch of us took into a rugged wetland area along the Ottawa River, during which she brushed aside my concern that she probably could not negotiate the irregular terrain with the walker she was using at the time. Other participants bailed out before we got into the heart of the site but not consummate naturalist Sheila who was determined to see all of its natural treasures. Recalling the outing, Sheila suggested to her daughter Eleanor, her most frequent field companion, "perhaps we should do that again". She was only half-joking.

During that recent conversation, eyes twinkling and insights and recollections flying a mile a minute, Sheila also volunteered that in retrospect, she was pleased that "we young folks were able to do some things" back then. I should say so!

All who have had the pleasure of knowing, learning from, and being inspired by Sheila are delighted to congratulate her on achieving this centennial milestone. And all members of the OFNC owe her thanks for all that she's been "able to do" for our natural world ... so far! 🐾

OFNC Awards Committee – can you help?

The Awards Committee of the OFNC manages the awards program for the Club. Awards are one way that the Club says thank you and recognizes outstanding volunteer efforts. (See <https://ofnc.ca/about-ofnc/awards>.)

The committee's main duties are to solicit nominations for awards, evaluate nominees and recommend them to the Board. Then citations are written for each award recipient outlining their achievements; these citations are published in *The Canadian Field-Naturalist* (CFN). Certificates are printed.

The committee (6 people) meets one time per year (in early December), while the rest of its business is conducted by email. Most of its work is done in December through February.

- Duties of committee members include:
 - Help evaluate nominations for each award
 - Write an award citation (non-technical), which includes research and fact checking
 - Review draft committee documents (e.g. draft citations prepared by other committee members, committee's annual report, budget, awards manuscript for CFN)
- Skills: writing; documents are prepared using Word; communication is by email
- Assets (not essential): have a broad interest in bringing recognition to Club members, be familiar with what people are doing in the Club

For further information, or to express an interest, please contact the Awards Committee chair, Eleanor Zurbrigg, at awards@ofnc.ca.

From a reader

In the October-December 2022 issue of *Trail and Landscape*, Roy John gives a great account of whales and men. But there is a caption in one of the photos taken in Mexico that requires attention. The caption reads: "*If you splash and call, Grey Whales will swim to your boat to get their skin scratched.*"

Such an action would be against federal law in Canadian waters. As well, the International Whaling Commission has issued whale-watching guidelines that instruct all operators to remain a minimum of 100 m away from whales at all times. Reputable whale-watching operators will abide by these requirements. To do otherwise puts the whale-watching boats, their passengers and whales at risk (collision, boat upsets, disease transmission). This can do harm to dwindling whale populations and the reputation of the whale-watching industry. I drive zodiacs for expedition ships in the Arctic. All drivers must take courses on whale-watching protocols. Failure to abide by whale-watching requirements can result in expedition companies losing their permits to operate in the Arctic. If you chose to go on a whale-watching cruise, please first determine if the operator will respect the 100-metre observation limit.

Peter Croal, Ottawa



Dear OFNC,

This is Genevieve, a member of the Macoun Club. With your support, I recently attended the Young Birders Weekend in Algonquin Park. I had an amazing time, spotting a variety of incredible things and meeting some great like-minded kids. I wanted to say thank you so much for this experience, it has opened doors to future opportunities and has sparked a new interest in the nature of this beautiful park.

Sincerely,
Genevieve Leroux



Here is a picture of me working as a Park Naturalist in Algonquin this summer, and I wouldn't have gotten that job without that trip! Photo by Kimberlee Leroux.



As part of the camp, we took part in the Algonquin Provincial Park Odonate Count, and I caught this Dusky Clubtail along the edge of a marsh. Thank goodness for rubber boots! Photo by Jeff Skevington.

This summer, the Ottawa Field-Naturalists' Club very generously offered to sponsor my participation in the Ontario Field Ornithologists' Alan Wormington Young Birders' Camp, and it might well be the most fascinating, purely enjoyable summer camp I've ever attended! Every day was jam-packed with birding adventures and atlassing projects, but there was always time in between to relax and talk nature with other bird enthusiasts my own age. The leaders, Ottawa's own Jeff and Angela Skevington, were fantastic – as thoughtful and caring as they were experienced and knowledgeable. They offered us the chance to see some of Algonquin Park's most stunning wildlife, including several moose, a family of bears and over 100 bird species (five of them very rare species for the park)! All in all, I had a wonderful time at the Young Birders' Camp, and came home with loads of birding stories, several deep friendships, and a newfound appreciation for how hard it is to steer a canoe when you haven't spaced out the weight properly. Thank you to Bob Cermak and those at the OFNC who made this possible!

Gabriel McMurren

Why do Freshwater Turtles Aggregate at Basking Sites?

Malcolm Fenech

A project supported in part by the 2022 OFNC Research Grants Program

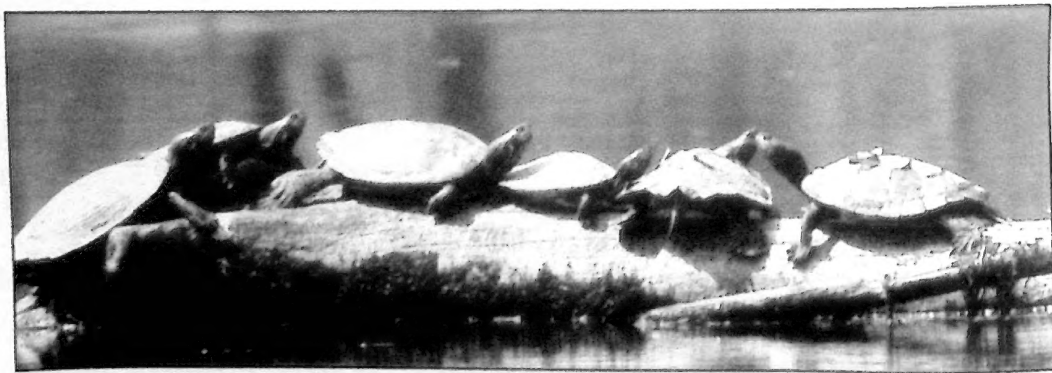
Aggregation occurs in many animals, from simple multicellular species to large mammals. Animals can aggregate for asocial or social reasons, both of which may occur simultaneously. Asocial aggregations occur when individuals are attracted to the same resources that are either limited or clumped (Johnson et al. 2002). For example, large herbivores aggregate around rare watering holes during the dry season in Kruger National Park, South Africa (Thrash et al. 1995). Animals can also aggregate for social reasons where individuals are attracted to one another. An example of a social reason for animals to aggregate is to have more eyes surveilling for predators, thus increasing vigilance and allowing individuals to devote more time towards other activities, such as foraging (Ebensperger et al. 2006).

Freshwater turtles commonly aggregate at basking sites (Boyer 1965; Gordon and

MacCulloch 1980; Selman and Qualls 2011), especially map turtles (genus *Graptemys*) (Lindeman 2013) and closely related emydid turtles. It is still unclear, however, why many species of freshwater turtles aggregate at basking sites. Many freshwater turtles must bask to acquire thermoregulatory benefits for energetic activities (Boyer 1965); however, suitable basking sites can be scarce, leading to aggregations at basking sites. Previous studies have suggested freshwater turtles aggregate at basking sites simply because high-quality basking sites are limited (Boyer 1965). High-quality basking sites are important for freshwater turtles to thermoregulate and removing these basking sites could be detrimental to their fitness (Lindeman 1999). Basking aggregations may also occur for social reasons. For instance, aggregation could occur if group basking increases the detection of predators or other threats (Jacobi and Kahl 2021).

Northern Map Turtles aggregated on a basking site at Petrie Island.

Photo by Malcolm Fenech.



This project was conducted for my M.Sc. thesis at the University of Ottawa and investigates why freshwater turtles aggregate at basking sites by testing two hypotheses: 1) turtles aggregate at basking sites because basking sites with preferred physical and thermal features are limited and 2) turtles aggregate at basking sites to

better detect predators. The OFNC Research Fund supported this project in 2022, as well as other turtle research projects at Petrie Island (Petrie Island Turtle Project). These projects also involved members from the Canadian Wildlife Federation, the Friends of Petrie Island, and the Petrie Island community.

The sex of each basking turtle was determined using morphological traits.

In adult Northern Map Turtles, females are significantly larger than males (top).

In adult Painted Turtles, males have proportionally longer front claws than females (bottom). Additionally, both adult male Northern Map Turtles and Painted Turtles have proportionally longer and thicker tails than adult females. Photos by Malcolm Fenech.



Methods

I studied Northern Map Turtles (*Graptemys geographica*) and Painted Turtles (*Chrysemys picta*), two locally abundant freshwater turtle species that aggregate at basking sites at Petrie Island, Ottawa, Ontario. I conducted basking surveys by canoe from May 2 to September 11 in 2021 and controlled disturbance trials by canoe from April 30 to August 19 in 2022.

During basking surveys, all basking turtles were photographed using a Nikon Coolpix P950 to capture detailed photos from a long distance, which reduced disturbance of basking turtles. The photos were later examined to identify the total number of basking turtles on each basking site. At each basking site, I measured available basking area (m²), distance to the closest shoreline (m), canopy coverage (%), and the basking site orientation (north or south). Previous studies suggest that these characteristics are important features of basking sites (Boyer 1965; Peterman and Ryan 2009; Lambert et al. 2013).

Controlled disturbance trials started from at least 10 m from each basking site and the canoe was paddled at a constant rate of approximately 1 m/s. Once the first turtle escaped into the water, the flight initiation distance (FID) was measured between the bow of the canoe and the basking site using a Bosch GLM400C Blaze outdoor laser measure. Prior to each controlled disturbance trial, basking turtles were photographed using a Nikon Coolpix P950. The photos were later examined to identify the total number of basking turtles on each basking site. After each controlled disturbance trial, the basking site temperature, surface water temperature, and air temperature at the basking site was measured. Basking sites were only subjected to one daily controlled disturbance trial to minimize sampling an individual turtle more than once in a single day and to minimize the thermoregulatory

benefits from basking that a turtle may lose when disturbed.

Results

Over 75 days of basking surveys (18 in May; 18 in June; 21 in July; 15 in August; 3 in September), I collected 1804 observations. The total number of basking turtles observed on a basking site during basking surveys ranged from 1 to 23 turtles. Turtles used 259 different available basking sites across Petrie Island. I found that available basking area was the greatest predictor for basking sites that turtles aggregated on. Canopy coverage, time of year (Julian date), and basking site orientation (South facing) were also significant variables for predicting aggregations at basking sites.

I conducted 610 controlled disturbance trials of basking turtles and found that the total number of basking turtles was the greatest predictor for flight initiation distance. Time of year was also a significant predictor for flight initiation distance. However, I have yet to include the sex and species of basking turtles in the analysis, both of which may have significant effects on the flight initiation distance of basking turtles.

I found that freshwater turtles aggregate at basking sites for both asocial and social reasons. Firstly, turtles will aggregate at basking sites that are larger, covered by less canopy, and are exposed to the sun for longer parts of the day. Additionally, there is a seasonal effect on aggregations at basking sites. Lastly, turtles will aggregate at basking sites for better detection of predators.

The results from my research are important for the conservation of freshwater turtles, as artificial basking sites with preferred physical and thermal characteristics can be provided to turtles in areas where high-quality basking sites are absent.

Additionally, protecting basking sites with high-quality features will allow freshwater turtles to thermoregulate effectively during summer months, which is important for turtles located at higher latitudes that have a short growing season and must overwinter, such as those at Petrie Island. Research of turtle aggregations at basking sites should be continued, as turtles may aggregate for additional social reasons such as better mating opportunities, mate assessment or rival assessment. 🐢



Here I am, handling a juvenile Northern Map Turtle.
Photo by Ella Eberhardt.

Literature cited

- Boyer, D.R. 1965. Ecology of the basking habit in turtles. *Ecology* 46(1/2): 99-118.
- Ebensperger, L.A., M.J. Hurtado, and R. Ramos-Jiliberto. 2006. Vigilance and collective detection of predators in Degus (*Octodon degus*). *Ethology* 112: 879-887.
- Gordon, D.M., and R.D. MacCulloch. 1980. An investigation of the ecology of the map turtle, *Graptemys geographica* (Le Sueur), in the northern part of its range. *Canadian Journal of Zoology*: 2210-2219.
- Jacobi, C.B., and S.S. Kahl. 2021. Grouped basking increases flight initiation distance in the red-eared slider (*Trachemys scripta elegans*). *Herpetological Review* 52(2): 256-259.
- Johnson, D.D.P., R. Kay, P.G. Blackwell, and D.W. Macdonald. 2002. Does the resource dispersion hypothesis explain group living? *TRENDS in Ecology & Evolution* 17(12): 563-570.
- Lambert, M.R., S.N. Nielsen, A.N. Wright, R.C. Thomson, and H.B. Shaffer. 2013. Habitat features determine the basking distribution of introduced red-eared sliders and native western pond turtles. *Chelonian Conservation and Biology* 12(1): 192-199.
- Lindeman, P.V. 1999. Surveys of basking map turtles *Graptemys* spp. in three river drainages and the importance of deadwood abundance. *Biological Conservation* 88: 33-42.
- Lindeman, P.V. 2013. The map turtle and sawback atlas: ecology, evolution, distribution, and conservation. University of Oklahoma Press.
- Peterman, W.E., and T.J. Ryan. 2009. Basking behavior of Emydid turtles (*Chrysemys picta*, *Graptemys geographica*, and *Trachemys scripta*) in an Urban Landscape. *Northeastern Naturalist* 16(4): 629-636.
- Selman, W., and C.P. Qualls. 2011. Basking ecology of the yellow-blotched sawback (*Graptemys flavimaculata*), an imperiled turtle species of the Pascagoula River System, Mississippi, United States. *Chelonian Conservation and Biology* 10(2): 188-197.
- Thrash, I., G.K. Theron, and J.P. Bothma. 1995. Dry season herbivore densities around drinking troughs in the Kruger National Park. *Journal of Arid Environments* 29: 213-219.

Surveying for At-risk Species of Frogs and Turtles

David Seburn

A project supported in part by the 2021 OFNC Research Grants Program

INTRODUCTION

We conducted surveys for two species at risk in eastern Ontario: the Western Chorus Frog (*Pseudacris triseriata*) and the Blanding's Turtle (*Emydoidea blandingii*).

The Western Chorus Frog is a small frog that calls in early spring for a short period of time. The call is a mechanical trill that sounds a bit like running a thumbnail along the teeth of a comb. Breeding sites are typically temporary wetlands. The Western Chorus Frog has declined in western Quebec and eastern Ontario and as a result, the populations in this area have been designated threatened by the federal government under the Species At Risk Act. In some areas, the decline is clearly a result of clearing land for development, but the cause or causes of declines in other areas are not as obvious.

Western Chorus Frogs remain fairly widespread in western Ottawa (Seburn and Gunson 2011) but are rare in eastern Ottawa and areas to the east (Seburn et al. 2014). They typically only live for one year and hence a dry spring that causes the pond to dry up early, before tadpoles transform, can eliminate an entire breeding population. Given this risk of populations being eliminated, we sought to confirm whether Western Chorus Frogs were continuing to breed at known calling sites in the Ottawa area. We also planned to conduct surveys in areas near known breeding sites, in the

hopes of finding previously undocumented breeding ponds. Populations in eastern Ontario and western Quebec have long been considered to be Western Chorus Frogs, but some genetic results suggest they may be Boreal Chorus Frogs (COSEWIC 2008). Further research is underway.



Western Chorus Frog.
Photo by Christine Hanrahan.

The Blanding's Turtle is a fairly large turtle that is widespread in eastern Ontario. Its bright yellow throat makes it easily recognizable. Blanding's Turtles can be found in wetlands like marshes and swamps, and individuals can make use of multiple wetlands over the course of an active season. The Blanding's Turtle was designated endangered by the federal government and it is also a globally endangered species. This species is declining because of ongoing loss of wetlands and high rates of roadkill. The species is listed as threatened by the

Government of Ontario and as a result receives habitat protection from the provincial government. This protection is for the nearest wetland to a confirmed observation of a Blanding's Turtle, but also adjacent wetlands up to 2 km away. Our goal was to survey for Blanding's Turtles in areas lacking observations of this species so that any observation would result in additional protection to wetlands and the species that occupy those areas.



Blanding's Turtle. Photo by David Seburn.

METHODS

1. Western Chorus Frogs

1.1 Auditory surveys

Surveys were conducted during the daytime as Western Chorus Frogs are known to call during both the day and night, and daytime surveys have proven successful in the past (Seburn et al. 2008, Seburn and Gunson 2011, Seburn et al. 2014). Virtually all sites were roadside wetlands where Western Chorus Frogs could be heard calling from the road. We followed the revised survey protocol for the Western Chorus Frog, which specified a five-minute listening period at each station and listening for at least three additional minutes if Chorus Frogs were detected (for a potential eight minutes, if Chorus Frogs were not detected until almost the end of the five-minute listening period). The survey protocol also recommends surveying each site twice, but we opted to survey more locations rather than surveying most stations a second time. When road noise, wind, or other background noise was an issue, listening time was extended. We recorded habitat information and the approximate location of the calling Western Chorus Frogs, along with calling index and other background information such as air temperature, wind speed, background noise, precipitation, and other species of frogs calling.

2. Blanding's Turtles

2.1 Basking surveys

Surveys were conducted from mid-May to early June when Blanding's Turtles are known to bask more frequently because water temperatures are cooler. We identified wetlands on Crown land in areas with no previously documented observations of Blanding's Turtles. Surveys were conducted by scanning objects in wetlands that could be used for basking (logs, hummocks, etc.) using binoculars. Any Blanding's Turtle observed was photographed to document the observation along with recording the location using a GPS.

2.2 Road surveys

On rainy days, when basking surveys would be unproductive, we undertook road surveys in areas in Frontenac County where there were gaps in the known distribution of the Blanding's Turtle. Two people were in the vehicle, which was driven relatively slowly, with the driver and the observer scanning the road surface and the shoulder for alive or dead turtles. A photo and the location was recorded for all turtles found on the roads.



Figure 1. Locations of survey sites for the Western Chorus Frog in the Russell area east of Ottawa in 2021. Yellow points = Western Chorus Frogs heard calling; red points = Western Chorus Frogs not heard calling.

RESULTS

1. Western Chorus Frog

We surveyed for Western Chorus Frogs from April 6 to 27, 2021. A total of 85 sites were surveyed at least once, with 9 sites surveyed twice. Western Chorus Frogs were heard calling at 53 of the 85 (62.4%) sites: 8 sites east of Ottawa near Russell (Figure 1) and 45 sites in western Ottawa (Figure 2).

Nine sites where Western Chorus Frogs were not heard during the first survey were surveyed a second time on a later date. We detected Western Chorus Frogs at only two of the nine (22.2%) sites on the second survey. Even though there is a good

chance that Chorus Frogs are no longer present at the other seven sites, it can take more than two surveys to detect a small population that does not consistently call.

We detected Western Chorus Frogs at one previously undocumented location in western Ottawa approximately 2 km from any of our known calling locations. We also found one previously unknown location with Western Chorus Frogs in the Russell area, approximately 0.4 km from a previously known location. These sites likely are not new breeding populations, but simply sites that had not been detected in the past.

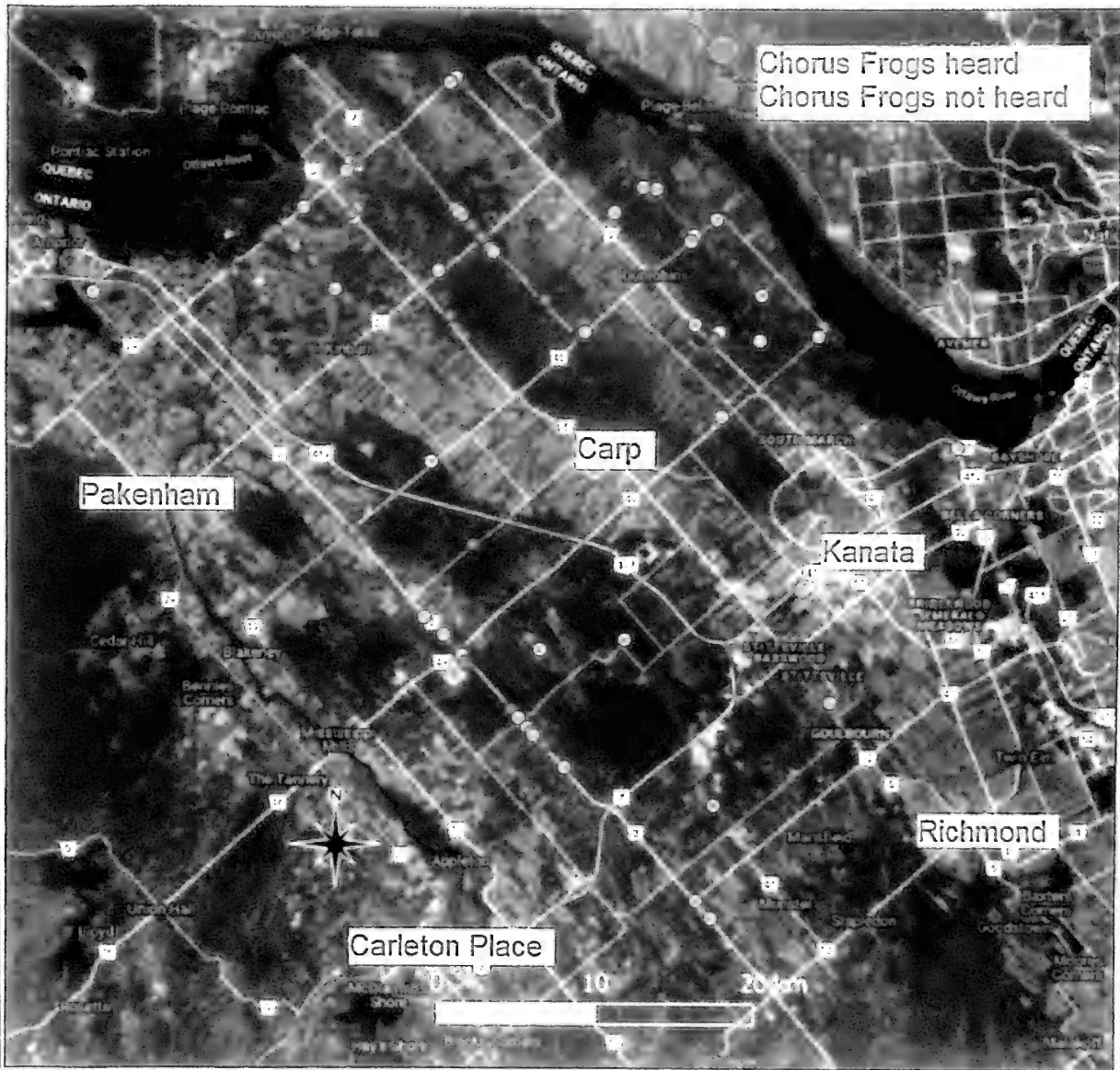


Figure 2. Locations of survey sites for the Western Chorus Frog in the western Ottawa area in 2021. Yellow points = Western Chorus Frogs heard calling; red points = Western Chorus Frogs not heard calling.

2. Blanding's Turtles

We conducted basking surveys for Blanding's Turtles from May 17 until June 2. Multiple wetlands were surveyed on each day, but only two Blanding's Turtles were found in all of the wetlands surveyed. One Blanding's Turtle was found basking in a wetland along the K&P Trail in Frontenac County and one was found in a wetland near Calabogie in Renfrew County. These two observations have resulted in

the protection of approximately 230 ha, or 2.3 km², of wetland habitat.

We also conducted road surveys in northern and central Frontenac County and found seven dead Blanding's Turtles. Most of these observations were close to known observations, but they still resulted in approximately 65 ha of wetland habitat being protected.

CONCLUSIONS

Our surveys confirmed that Western Chorus Frogs remain widespread in western Ottawa, and persist around the Russell area. We found two previously unknown locations with the species.

The large number of sites where Western Chorus Frogs were not detected (32 of 85) is troubling and suggests a number of populations may have been lost. Additional surveys in future years will be required to determine if these populations persist.

We found Blanding's Turtles in two new areas during our wetland surveys in Frontenac and Renfrew, and found seven dead individuals on roads in Frontenac. As a result of these observations, approximately 3 km² of wetland habitat has been protected. 🐢

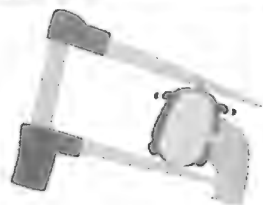
LITERATURE CITED

- COSEWIC. 2008. COSEWIC assessment and update status report on the Western Chorus Frog *Pseudacris triseriata* Carolinian population and Great Lakes/St. Lawrence – Canadian Shield population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
- Seburn, D.C., and K. Gunson. 2011. Has the Western Chorus Frog (*Pseudacris triseriata*) declined in western Ottawa, Ontario? Canadian Field-Naturalist 125: 220-226.
- Seburn, D.C., K. Gunson, and F.W. Schueler. 2014. Apparent widespread decline of the Boreal Chorus Frog (*Pseudacris maculata*) in eastern Ottawa. Canadian Field-Naturalist 128:151-157.
- Seburn, D.C., C.N.L. Seburn, and W.F. Weller. 2008. A localized decline in the Western Chorus Frog (*Pseudacris triseriata*) in eastern Ontario. Canadian Field-Naturalist 122:158-161.




Reminder:

The deadline to submit
an application for a



2023 OFNC Research Grant
is
January 15, 2023.



For more details, go to ofnc.ca
or see "OFNC Research Grants:
Call for Proposals for 2023" in
Trail & Landscape 56(4), October-
December 2022, pp. 191-192.



HARRIERS

on Cameron Harvey Drive

Report and photos by Al Short, September 2022

When I was driving home on April 22, 2022, at about 3:30 p.m., after a bird watching outing west of Ottawa, I saw a large bird cruising over a marshy field. The bird turned out to be a Northern Harrier. I did not realize it, but I had found a hawk nest and I would come back many times to photograph the Harriers on Cameron Harvey Drive.

Number of observations per month	Dates of observations	Activity during month (roughly)	
Two in April	22 th and 24 th	Nest building	
One in May	11 th	Eggs laid, incubation/brooding	May 1-31
Four in June	11 th , 19 th , 22 nd and 26 th	Raising and feeding four young	June 1-July?
Twelve in July	From the 2 nd to the 31 st	Learning to fly, hunt	July
Three in August	3 rd , 5 th and 6 th	Learning to hunt	August

I recorded twenty-two days of observations totaling 60 hours. Most of my time was spent observing the raising, feeding and training of the young Harriers from the end of June to the beginning of August, and my comments pertain to this period.

Photo above: *Beautiful female Northern Harrier on May 11, 2022.*

Harrier FAQs

- Unlike other hawks, Harriers are able to use their ears to locate prey like an owl.
- Harriers are known to hold prey under the water and drown them.
- Length: 0.46 metre (18 inches); wingspan: 1.09 metres (43 inches); weight: 420 grams (15 ounces)
- Diet: small mammals, reptiles, amphibians and birds
- Nest building: 1-2 month
- Eggs: incubated for 1 month
- Males provide food to females and offspring
- Females incubate eggs and brood chicks
- Chicks fledge at 35 days approximately
- Sexual maturity is reached at around 3 years
- Maximum lifespan: 15 years



Photo: Wikipedia, April 12, 2011

Location

The ground nest, only 35 yards from the highway, proved to be advantageous for photography. The adult Harriers demonstrated a curiosity about me and occasionally flew overhead to get a good look at me. I could not see the nest, nor the young or the adults on the nest, but knew the location from the food deliveries. I could have walked over, but didn't. I thought I was close enough on the road and didn't want to disturb the hawks. The field was marshy and wet, full of cattails and long grass with a few shrubs. Trees in the marshy part were all dead. One hundred yards back in the field, there were healthy conifers growing.



Female hunting, June 19.

Behaviours

The hawks were very careful not to reveal their presence in general. The male made his deliveries and left immediately. The female often flew to the nest, from the back of the field, so low that the tall grass would conceal her. If I didn't see her, I would assume she was at the nest. She was also careful not to reveal the nest site. I saw a lot of food deliveries from both the male and the female. The number one prey were baby marsh birds, and muskrats were number two. The male was a good, tireless hunter but as noon approached and heat increased, he would slow down. Also, he did not like to deliver food to the nest between

8 and 9 a.m., when the highway was the busiest. The hunting trips took anywhere from 1 to 45 minutes. The male flew directly to the nest to drop off the food. Sometimes the female would fly under the male so he could drop the food to her. She would go back to the nest to feed the young and he would continue to hunt. Sometimes the female would hunt too. She often checked on me briefly before flying off to hunt.

In the late morning, the adults would fly high in the sky (250 feet) together or singly, not to hunt, usually on a sunny day. I did see the female bring mouthfuls of grass, performing nest maintenance, I suspect.



Female Harrier performing nest maintenance, July 2.

The chicks fledged in late June or early July and started to fly. This made the nursery a lot more interesting. At first the young stayed on the ground in the field. Only when food deliveries to new field locations started did I realize youngsters were flying. This was July 10. The young were relocating approximately 60 yards from the nest.

On July 16, the female flew over the field where the young were dispersed, calling to them constantly. Finally, she found a perch, and continued to call, for a total time of 10 minutes. I saw this behaviour of prolonged calling only once.



Female calling young to fly, July 16.

Food-based Training

It wasn't until July 24 that I actually saw the chicks fly. Suddenly, there were 4 chicks flying towards an adult carrying food. How amazed and happy I was to finally see them on the wing. The male, and later the female, would use a game of dropping the food in midair

to feed and teach the young precision flying. With the adult flying with the food and a hungry chick following him or her, the adult would suddenly steeply climb 20 yards up, allowing the chick to get underneath. Then he or she would drop the food for the chick to grab in midair or to follow it down to the ground. The youngsters flew vigorously and were motivated to play this game of chase and catch. Sometimes it was a competition of who could get to the adult first. As time passed, the game morphed into stealing the food from one another. In between eating and resting, the siblings would chase each other, perform mock attacks, dive bomb each other and cruise above the trees in hunting mode. All this honed their flying skills so after two weeks of practice, they were becoming skilled, agile fliers who could dive bomb or turn on a dime.

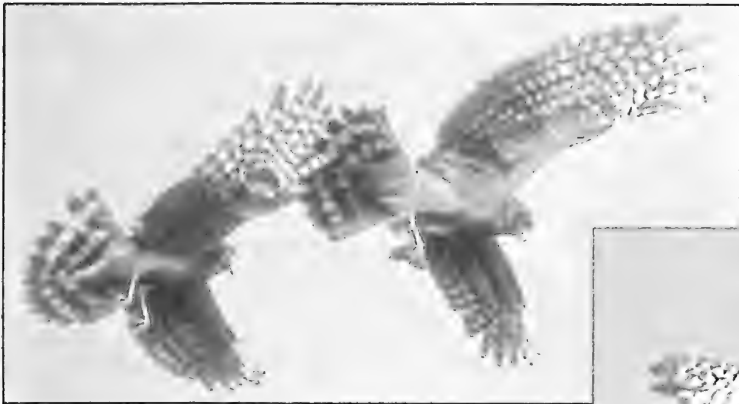


Chick trying catch the food dropped by male, July 27.

On July 21, I captured a confrontation between the female Harrier and an Osprey. Their nests were only 250 yards apart. The Osprey was patrolling the field containing the Harrier chicks, which it normally didn't do. The female Harrier perceived this as a threat and confronted the Osprey. The Osprey quickly turned and was escorted from the field by the Harrier. →



As the chicks practised chase and catch with the adults, stealing the food from one another was now on the menu. Below is an example of the piracy between siblings on August 5.



← August 5: Harrier sneaks up behind a sibling with food...



and manages to get both feet on the prize. →



← With two feet on the prize versus one...

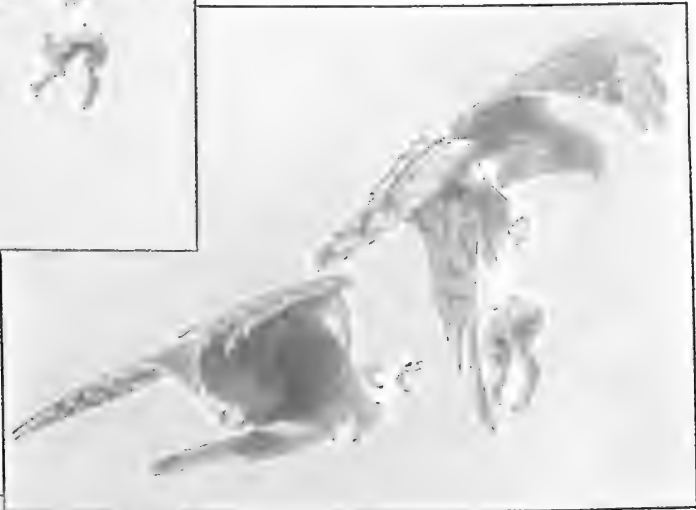


the bandit makes good the steal. →

This is an example of two birds competing for the food, but I often saw all four siblings in close proximity fight for the food. Witnessing how motivated the young were to chase down the adults to get to the food, I can see how falconry works with food. Falconers use this same training method, food on the glove, to get the hawks to fly to them.



← July 31: Youngster wants the headless rabbit.



Ready to grab it. →



← Quick direction changes fools youngster.



Go fetch! →



August 3: Chicks chase after female adult with food.

Unfortunately, the chicks started sitting in the trees, farther back in the field, maybe 100-150 yards back. It was impossible to photograph them at this distance. So I had to finally give up this amazing connection. I felt the Harriers had accepted me and allowed me to view their world. It's simply amazing that a bird can go from an egg to flying in three months. Plus how nice it is to know the hawks are coming to you, and you are not searching for them because you are near their nest. Now it is September and I doubt I will see a Harrier until next year. My final picture will be of the male Harrier returning to the forest. 🦅





A HISTORY OF THE OTTAWA RIVER

OVER MILLIONS OF YEARS!



A HISTORY OF THE OTTAWA RIVER

I. INTRODUCTION

THE OTTAWA RIVER IS ONE OF THE GREAT RIVERS OF CANADA.


IT FLOWS 1,200 KMS FROM ITS HEADWATERS IN WESTERN QUEBEC, ALONG THE ONTARIO-QUEBEC BORDER, TO WHERE IT JOINS THE ST LAWRENCE RIVER NEAR MONTRÉAL.



BUT HOW DID THE RIVER COME TO BE?
... AND
WHAT ADVENTURES
HAS IT LIVED?

LET'S LISTEN TO
WHAT THE RIVER
WILL TELL US ...

... AS WE JOURNEY
WAAY BACK INTO THE
PAST ...

Créé avec l'application  développée par la BnF

II. THE BEGINNINGS

FROM: 450 MILLION YEARS AGO
TO: 2 MILLION YEARS AGO



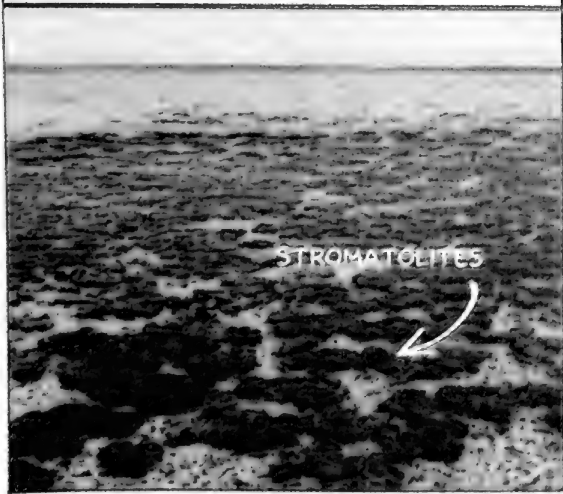
THE STORY STARTS
BEFORE THE RIVER
EVEN EXISTED!



MANY EVENTS
IN THE
EVOLUTION
OF THE
EARTH
RESULTED IN
THE RIVER
THAT WE
KNOW TODAY.



AT THAT TIME, THE OTTAWA RIVER
REGION WAS COVERED BY
A WARM SALTY SEA.



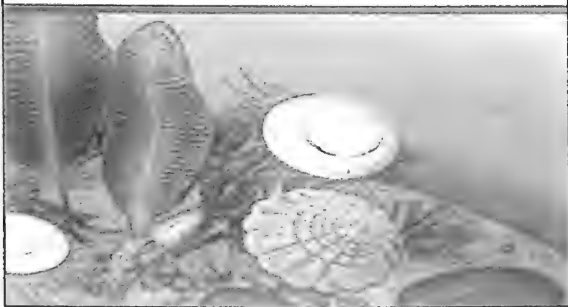
STROMATOLITES



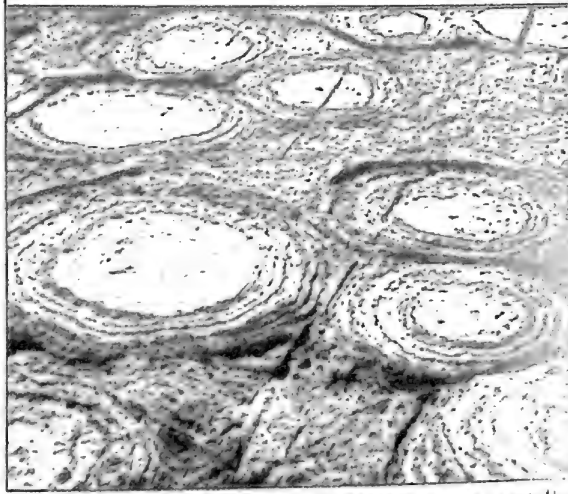
450 MILLION YEARS AGO

450 MILLION YEARS AGO, PLANT AND ANIMAL LIFE WAS JUST BEGINNING AND WAS FOUND MOSTLY IN THE WATER.

LIFE IN TEMPERATE OCEANS INCLUDED CLAMS, TRILOBITES, SNAILS AND A CORAL-LIKE ORGANISM CALLED A STROMATOLITE.



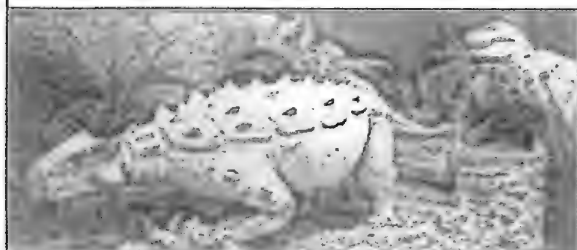
WE KNOW THIS FROM THE STROMATOLITE FOSSILS WE CAN SEE TODAY ALONG THE RIVER'S BANKS.



Cr    avec l'application PDF d  velopp  e par la L     

200 MILLION YEARS AGO

THE OTTAWA RIVER REGION WAS NO LONGER UNDER WATER. DINOSAURS LIKELY ROAMED HERE ... HOWEVER, THERE IS NO FOSSIL PROOF SINCE ALL ROCK FROM THIS ERA HAS ERODED AWAY.



175 MILLION YEARS AGO

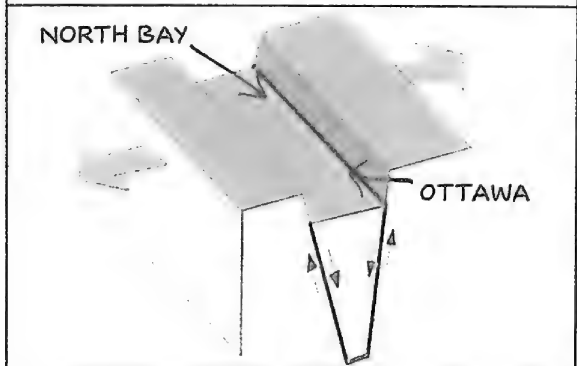
THE EARTH'S CRUST IN THE OTTAWA RIVER REGION PULLED APART, THE LAND IN THE CENTRE DROPPED AND A VALLEY WAS FORMED.



THE OTTAWA RIVER WILL LATER FLOW ALONG THIS RIFT VALLEY.

NORTH BAY

OTTAWA

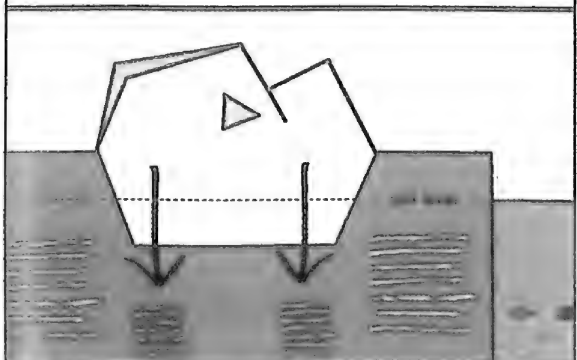


2 MILLION YEARS AGO

DURING THE ICE AGE, MASSIVE GLACIERS COVERED OUR ENTIRE REGION



THE GLACIERS WERE UP TO 2 KM THICK. THEIR HUGE WEIGHT DEPRESSED THE EARTH'S CRUST BENEATH THEM TO BELOW SEA LEVEL!



THE EARTHQUAKES WE FEEL NOW ARE FROM MOVEMENT OF THE EARTH'S CRUST, EITHER:
ITS SHIFTING ALONG THE RIFT VALLEY OR ITS SPRINGING BACK UP BECAUSE THE GLACIERS HAVE GONE.



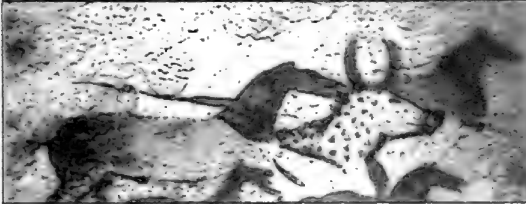
Cr    avec l'application d   velopp    par la BnF

III. BIRTH OF A RIVER

FROM: 20 THOUSAND YEARS AGO
TO: 8 THOUSAND YEARS AGO

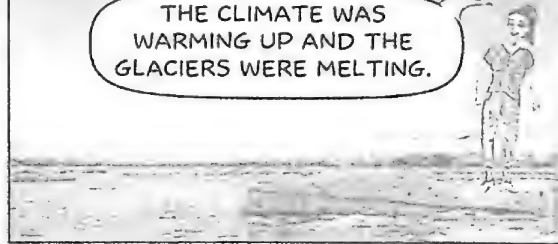
20 THOUSAND YEARS AGO

IN VARIOUS PARTS OF THE WORLD, EARLY HUMANS WERE PAINTING CAVE ART. BUT PEOPLE HAD NOT YET ARRIVED IN EASTERN CANADA.



HERE IN THE OTTAWA RIVER REGION THE ICE AGE WAS COMING TO AN END.

THE CLIMATE WAS WARMING UP AND THE GLACIERS WERE MELTING.

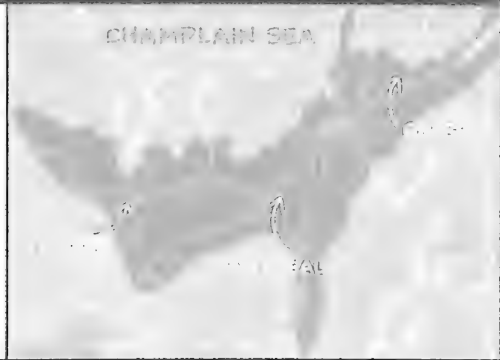


WHEN THE GLACIERS DISAPPEARED, SOME LAND UNDERNEATH WAS BELOW SEA LEVEL. SO, WATER FROM THE ATLANTIC OCEAN BEGAN TO FLOW IN.

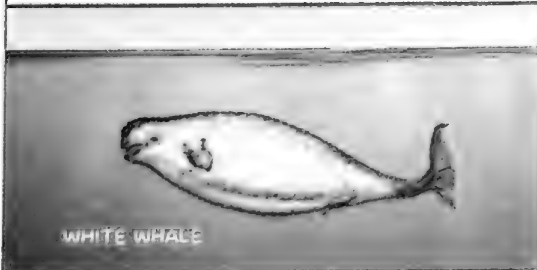


13 THOUSAND YEARS AGO

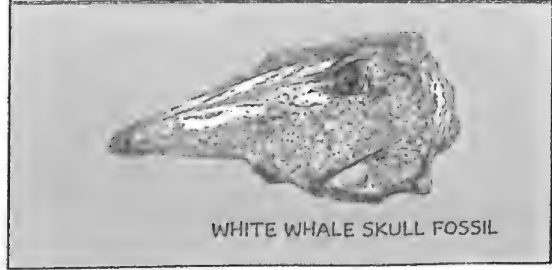
THE RESULT WAS THE CHAMPLAIN SEA. IT WAS A MIX OF OCEAN WATER AND GLACIAL MELT. THUS IT WAS A SALTY ICY SEA.




THESE ARCTIC-LIKE CONDITIONS MEANT THAT SEVERAL SPECIES OF WHALES, SEALS, AND WALRUSES LIVED IN THIS SEA.



MUCH FOSSIL EVIDENCE OF THE LIFE IN THE CHAMPLAIN SEA HAS BEEN FOUND, INCLUDING A WHITE WHALE SKULL IN PAKENHAM AND TWO NEAR THE OTTAWA AIRPORT.



Cr   avec l'application  d  velopp  e par la D  f

10 THOUSAND YEARS AGO

THE LAND THAT HAD BEEN DEPRESSED BY THE GLACIERS SPRUNG BACK UP AND THE CHAMPLAIN SEA FLOWED BACK TO THE OCEAN.

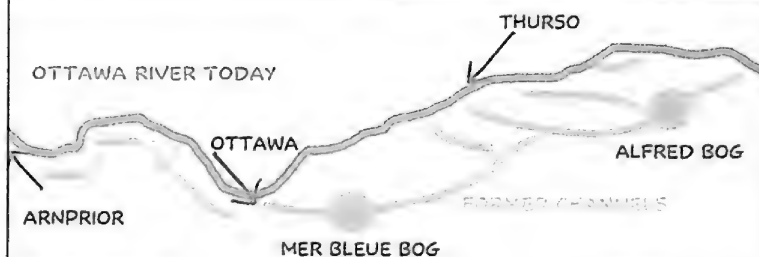


THIS FLOW COMBINED WITH THE CONTINUING GLACIAL RUN-OFF CREATED A BROAD WATERWAY RUNNING THROUGH THE OTTAWA RIVER REGION.



THIS WATERWAY MARKED THE BIRTH OF THE OTTAWA RIVER!


OVER THE YEARS AS THE WATER LEVELS REDUCED, THE YOUNG RIVER USED MULTIPLE CHANNELS AND CHANGED COURSE MANY TIMES. WE CAN VISIT THE VESTIGES OF TWO FORMER CHANNELS TODAY AT THE MER BLEUE AND ALFRED BOGS.



8 THOUSAND YEARS AGO

THE OTTAWA RIVER SETTLED INTO ITS CURRENT POSITION.



Cr   avec l'application  d  velopp  e par la BNF

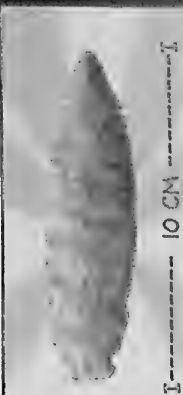
IV: THE FIRST PEOPLES

FROM: 8 THOUSAND YEARS AGO

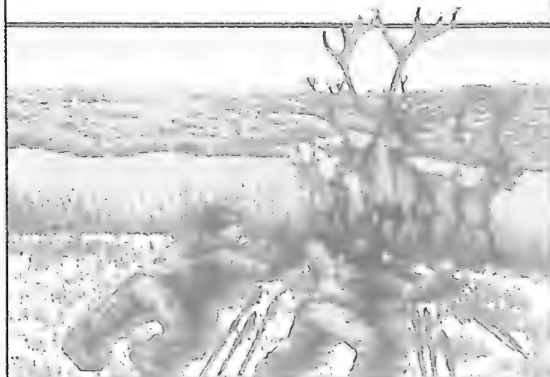
TO: 500 YEARS AGO

8 THOUSAND YEARS AGO

THE EARLIEST EVIDENCE OF HUMANS IN THE OTTAWA RIVER REGION IS A STONE JAVELIN POINT FOUND NEAR PERTH ONTARIO. THIS SPEAR HEAD WAS LIKELY USED FOR HUNTING LARGE ANIMALS, LIKE CARIBOU.



THE FIRST PEOPLE WERE NOMADIC AND LIVED BY HUNTING, FISHING, GATHERING AND TRAPPING.

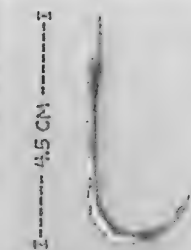


5 THOUSAND YEARS AGO

THE OTTAWA RIVER WAS PART OF A VAST TRADE NETWORK AMONG THE ABORIGINAL PEOPLES WITH A MAJOR TRADING SITE LOCATED ON ALLUMETTE & MORRISON ISLANDS.



OBJECTS FROM AS FAR AWAY AS LAKE SUPERIOR, VERMONT, AND LAKE ONTARIO WERE UNEARTHED ON THESE ISLANDS. THEIR PLACE OF ORIGIN IS KNOWN FROM THE MATERIALS AND DESIGNS USED.



FISHING HOOK FROM LAKE SUPERIOR

THE NAME OTTAWA COMES FROM THE ANISHINÀBEMOWIN (ALGONQUIN LANGUAGE) WORD "ADÀWE" - MEANING TRADE.



Cr   avec l'application d  velopp  e par la BNF

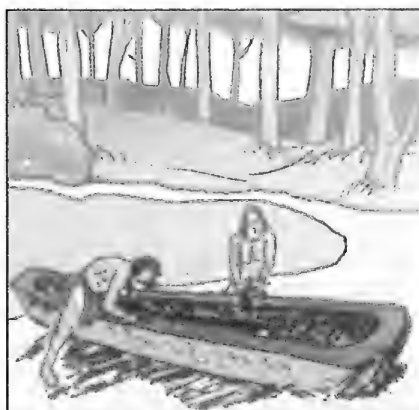
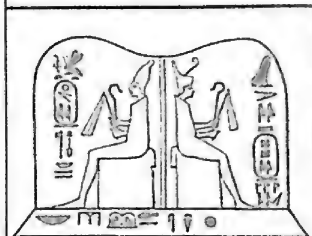
3 THOUSAND YEARS AGO

THE ALGONQUIN PEOPLE FELT A SPIRITUAL CONNECTION WITH THE OTTAWA RIVER AND CHOSE SACRED SITES. ONE OF THE OLDEST TO BE DATED IS OISEAU ROCK NEAR THE TOWN OF CHALK RIVER.

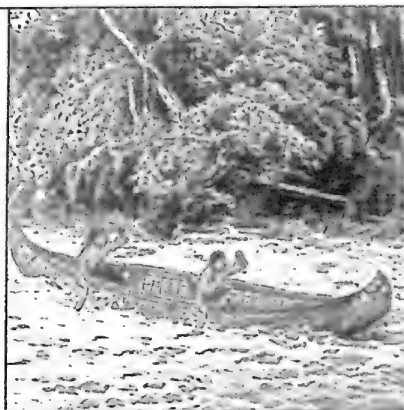
THIS HIGH CLIFF IS ADORNED WITH IMAGES OF FISH, CANOES AND BIRDS.



THIS ROCK ART WAS CREATED AT THE SAME TIME THAT THE EGYPTIAN PHAROAHs RULED.

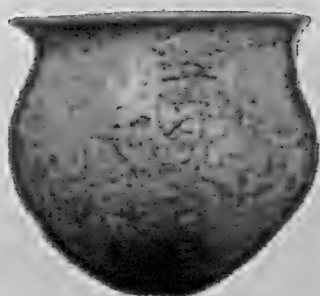


AROUND THIS TIME, THE BIRCH BARK CANOE REPLACED THE DUGOUT CANOE AS THE MAIN MEANS OF WATER TRANSPORTATION. THESE CANOES WERE EASIER TO MAKE, LIGHTER TO PORTAGE, BUT STILL STRONG ENOUGH TO ENDURE WILDERNESS TRAVEL.



2.5 THOUSAND YEARS AGO

THE MAKING AND USE OF CERAMIC POTS BEGAN. THIS EXAMPLE WAS RECONSTRUCTED FROM POTTERY SHARDS DUG UP A SHORT TIME AGO FROM A COTTAGE LOT AT CONSTANCE BAY.



ENLARGEMENT OF DESIGN

THE NATIVE PEOPLES CONTINUED TO TRADE ALONG THE RIVER, EXPANDING THEIR NETWORKS TO NEW AND DISTANT PLACES.



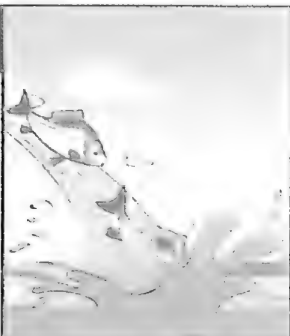
Cr  e avec l'application BnF d  velopp  e par la fBnF

V: FISH & FISHING

FROM: 10 THOUSAND YEARS AGO
TO: PRESENT

10 THOUSAND YEARS AGO

WHEN GLACIERS STILL COVERED THE OTTAWA RIVER REGION, NO FRESHWATER FISH EXISTED HERE. BUT AS THE GLACIERS MELTED TO FORM THE RIVER, FISH FROM SURROUNDING WATERS ARRIVED WITH THE MELT-OFF FLOW.



ABOUT 85 SPECIES OF FISH LIVE IN VARIOUS PARTS OF THE RIVER ACCORDING TO THEIR PREFERRED HABITAT.



SUNFISH



AMERICAN EEL

LAKE STURGEON

TWO IMPORTANT SPECIES ARE THE AMERICAN EEL AND LAKE STURGEON.

THE AMERICAN EEL USED TO BE, BY FAR, THE MOST ABUNDANT FISH IN THE RIVER.

THE LAKE STURGEON IS THE LARGEST FRESHWATER FISH IN CANADA, WEIGHING AS MUCH AS AN ADULT GORILLA.

THE OTTAWA RIVER IS ALSO HOME TO A NUMBER OF FRESHWATER MUSSELS WHICH FILTER AND OXYGENATE THE WATER.



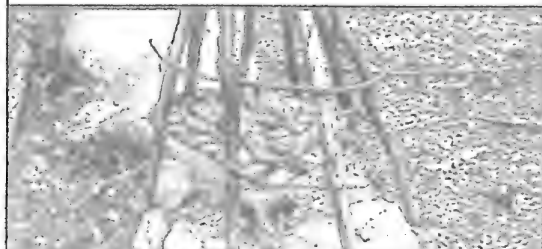
5 THOUSAND YEARS AGO

AT THE ALLUMETTE/MORRISON ISLAND DIG, HUNDRED OF EEL BONES AS WELL AS THE REMAINS OF A STONE FISHING WEIR WERE FOUND. THESE ISLANDS WERE A LARGE EEL-HARVESTING SITE.



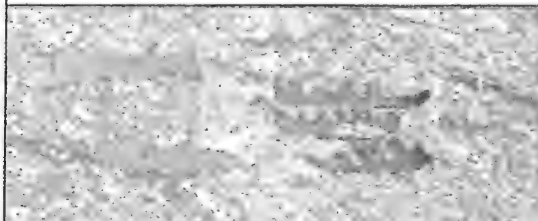
Cr   avec l'application d  velopp  e par la BNF

THE AMERICAN EEL HAS A RICH OILY MEAT WHICH PROVIDED THE ABORIGINAL PEOPLES WITH SUBSTANTIAL NOURISHMENT. IT COULD BE DRIED OR SMOKED AND THEN STORED FOR WINTER USE AND TRAVEL.



3 THOUSAND YEARS AGO

LAKE STURGEON WAS USED FOR FOOD AS WELL AS FOR ITS BONES, OIL AND SKINS. IN FACT, ITS OIL WAS MIXED WITH OCHRE TO CREATE THE PICTOGRAPHS AT OISEAU ROCK.



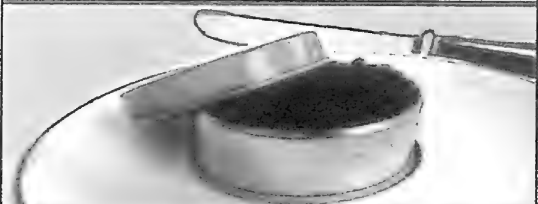
400 YEARS AGO

WHEN EUROPEANS ARRIVED IN THE AREA, THEY REPORTED ABUNDANT FISH - WITH THE NATIVE PEOPLE CATCHING VARIETIES SUCH AS PIKE, STURGEON AND CARP IN THEIR NETS.



100 YEARS AGO

LAKE STURGEON BECAME POPULAR IN NORTH AMERICA AND EUROPE AS A SMOKED FISH AND FOR ITS CAVIAR. A COMMERCIAL FISHERY ON THE OTTAWA RIVER HARVESTED THE FISH FOR MARKET. SUSTAINABLE FISHING PRACTICES WERE NOT YET USED AT THAT TIME.



DAMS BEGAN TO BE BUILT ALONG THE OTTAWA RIVER, WHICH HAD A NEGATIVE IMPACT ON MIGRATING SPECIES LIKE THE AMERICAN EEL. EFFORTS ARE NOW BEING MADE TO BRING BACK EEL POPULATIONS.



TODAY

THE AMERICAN EEL IS CALLED "PIMISI" IN ANISHINÀBEMOWIN. THE PIMISI STATION ON OTTAWA'S O-TRAIN LINE WAS SO NAMED TO HONOUR THE EEL'S IMPORTANCE TO THE ALGONQUIN PEOPLE.



Créé avec l'application **BNF** développée par la BNF

VI: CHAMPLAIN & THE FUR TRADE

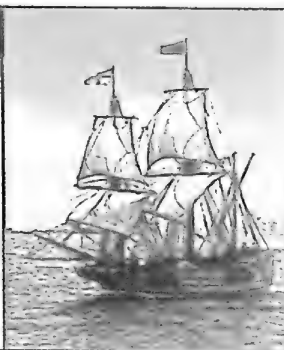
FROM: 400 YEARS AGO

TO: 150 YEARS AGO

400 YEARS AGO

EUROPEANS WERE COMING TO CANADA IN SEARCH OF A NEW ROUTE TO THE RICHES OF ASIA.

DURING THEIR EXPLORATIONS THEY DISCOVERED THE PLENTIFUL RESOURCES OF THE COUNTRY, INCLUDING FURS.



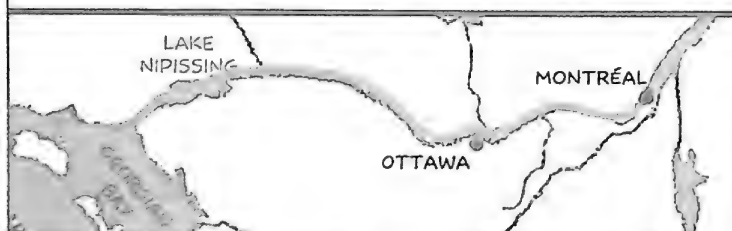
HATS MADE OF FELT FROM BEAVER FUR WERE VERY POPULAR. SO A LUCRATIVE BUSINESS IN BEAVER PELTS BEGAN.



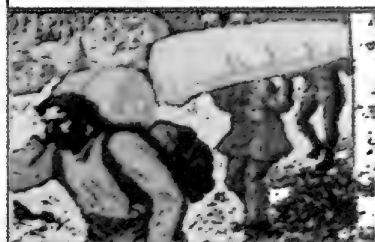
SAMUEL DE CHAMPLAIN WAS A FRENCHMAN WHO EXPLORED AND TRADED ALONG THE OTTAWA RIVER. HE ALLIED WITH THE NATIVE PEOPLES FOR NAVIGATION AND TRAPPING.



THE OTTAWA RIVER WAS A PART OF THE FUR TRADE ROUTE THAT CHAMPLAIN ESTABLISHED. IT TOOK ABOUT 40 DAYS TO CANOE FROM THE TRADE DEPOTS IN MONTRÉAL TO GEORGIAN BAY. CANOES CARRIED GOODS SUCH AS CLOTH AND KETTLES ON THE TRIP OUT AND PELTS ON THE RETURN.



THE ROUTE HAD MANY RAPIDS AND WATERFALLS, REQUIRING ABOUT 35 PORTAGES. THE PORTAGE PATHS WERE THOSE INITIALLY USED BY THE NATIVE PEOPLE.

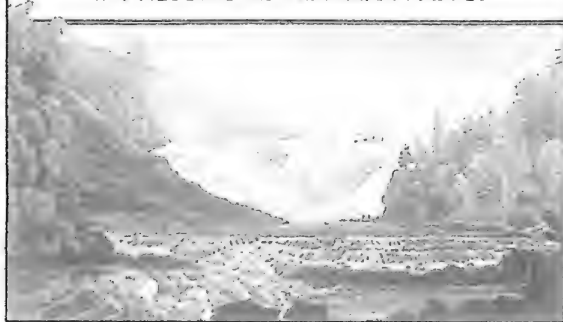


ON A DIFFICULT PORTAGE, CHAMPLAIN LOST HIS ASTROLABE (A DEVICE FOR DETERMINING LOCATION). ONE DATING FROM THAT PERIOD WAS FOUND 250 YEARS LATER BY A FARM BOY.

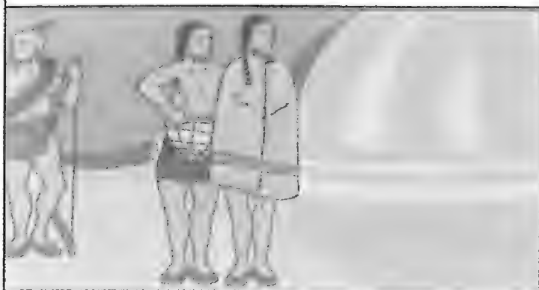


Créé avec l'application développée par la BNF

ANOTHER PORTAGE WAS AT THE CHAUDIÈRE FALLS IN OTTAWA-GATINEAU. THESE POWERFUL FALLS USED TO BE CONSIDERED (BEFORE THE DAM) NEARLY AS IMPRESSIVE AS NIAGARA FALLS.



THE CHAUDIÈRE FALLS WERE SACRED TO THE NATIVE PEOPLE. DURING CHAMPLAIN'S PORTAGE HERE, HE DOCUMENTED INDIGENOUS TRAVELLERS OFFERING TOBACCO FOR A SAFE JOURNEY UP THE RIVER.



350 YEARS AGO

DUE TO THE PROFITS FROM THE FUR TRADE, INTENSE RIVALRIES AND WARS BROKE OUT. EUROPEAN AND NATIVE PEOPLES VIED FOR CONTROL OF TRADING TERRITORY.



THE FRENCH HELD ON TO THE FUR TRADE ALONG CHAMPLAIN'S ROUTE FOR THE NEXT 100 YEARS. THEY TRAVELLED IN LARGE BIRCHBARK CANOES, PADDLED BY 8 "VOYAGEURS", CARRYING PROVISIONS, 60-80 BUNDLES OF GOODS, AND SOMETIMES PASSENGERS.

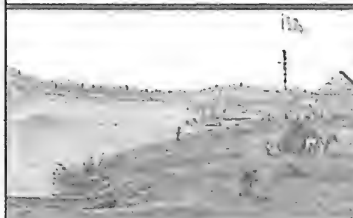


THE VOYAGEURS WOULD TRAVEL UP-RIVER IN SUMMER, CAMP AND TRADE OVER WINTER AND RETURN TO MONTRÉAL IN THE SPRING.



250 YEARS AGO

AS THE BRITISH BECAME DOMINANT, TWO OF THEIR COMPANIES: THE HUDSON'S BAY AND NORTH WEST COMPANIES SET UP TRADING POSTS ALONG THE OTTAWA RIVER.



150 YEARS AGO

THE FUR TRADE CAME TO A CLOSE AS THE BEAVER POPULATION DWINDLED AND AS SILK BECAME THE FASHIONABLE MATERIAL FOR HATS.



Créé avec l'application **BNF** développée par la BnF

VII: PLANT LIFE

FROM: 10 THOUSAND YEARS AGO
TO: PRESENT

10 THOUSAND YEARS AGO

AFTER THE MELTING OF THE GLACIERS, THE FIRST VEGETATION IN THE OTTAWA RIVER REGION WAS A HERB-SHRUB TUNDRA. THERE WERE PLANTS LIKE SEDGES, GRASSES AND JUNIPERS.



THE NEXT TO GROW WERE BOREAL SPECIES. THESE ARE MOSTLY CONIFEROUS TREES - SPRUCES AND PINES - WITH SOME DECIDUOUS SUCH AS BIRCH AND ALDER.

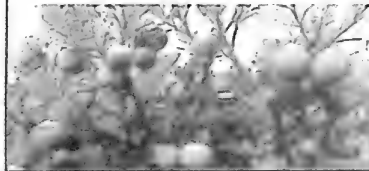


5 THOUSAND YEARS AGO

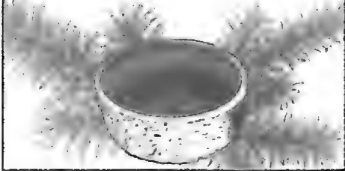
WITH THE CONTINUED WARMING OF THE CLIMATE, DECIDUOUS TREES BECAME DOMINANT. THE MAIN SPECIES IN THE FOREST BECAME THOSE THAT WE SEE TODAY: MAPLE, OAK, BIRCH, PINE, AND SPRUCE.



THE LOCAL PLANT LIFE WAS AN IMPORTANT PART OF THE NATIVE PEOPLES' DIETS. FOR EXAMPLE, THEY CONSUMED FERN SHOOTS AND BLUEBERRIES, MADE FLOUR FROM BOILED ACORNS, AND COLLECTED MAPLE SAP.



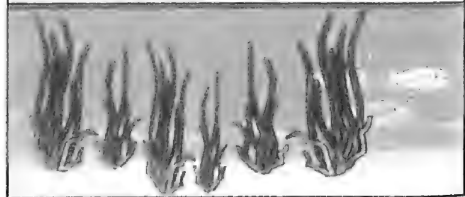
AS WELL, CONIFERS WERE WIDELY-USED FOR MEDICINES. THE GUM WAS MADE INTO AN OINTMENT AGAINST INFECTIONS. TEAS MADE WITH THE NEEDLES WERE HIGH IN VITAMIN C.




IN THE WETLANDS ALONG THE SHORES OF THE OTTAWA RIVER GREW PLANTS SUCH AS THE SILVER MAPLE, DOGWOOD AND FERN. THE SILVER MAPLE TENDS TO DEVELOP TRUNK CAVITIES THAT ARE USED FOR NESTING BY OWLS AND RACCOONS. DOGWOOD, CALLED "MISKWAABIIMAGOONS" IN ANISHINABEMOWIN, IS A MEDICINAL PLANT USED TO HELP WITH ARTHRITIS.



SEVERAL TYPES OF SUBMERGED PLANTS, LIKE TAPE GRASS AND HORNWORT, GROW IN THE RIVER. THESE PLANTS CLEAN THE WATER, ARE FOOD FOR WATERFOWL, AND PROVIDE SPAWNING AREAS FOR FISH.



Cr   avec l'application  d  velopp  e par la BnF

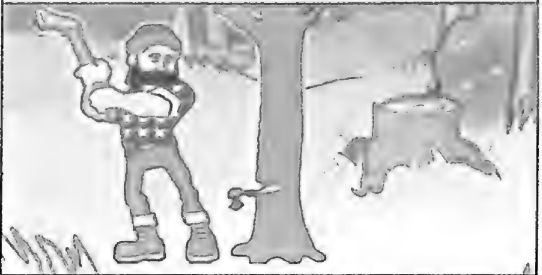
1,000 YEARS AGO

THROUGH TRADE,
THE ABORIGINAL
PEOPLES OF THE
OTTAWA RIVER
REGION ACQUIRED
SEEDS FOR
PRODUCE SUCH AS
CORN AND
SQUASH. THE
CULTIVATION OF
CROPS BEGAN.



200 YEARS AGO

THE EUROPEAN SETTLERS ESTABLISHED LOGGING INDUSTRIES FOR WHICH MUCH OF THE FOREST ALONG THE RIVER WAS CUT DOWN.



FORESTS WERE ALSO FELLED FOR AGRICULTURE. THE MAIN CROPS GROWN WERE WHEAT, OATS AND POTATOES. DUE TO THE THIN SOIL IN PARTS OF THE REGION, MANY SETTLERS WERE ONLY ABLE TO HARVEST ENOUGH FOR THEIR OWN FAMILY'S NEEDS.

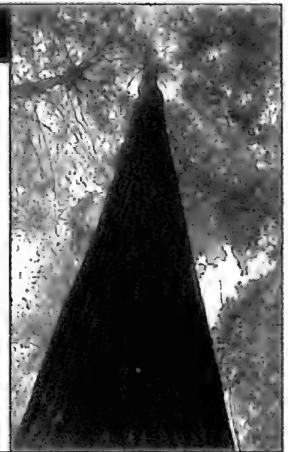


AFTER THE FORESTS WERE
CLEARED, WEEDS INVADDED.
IN PARTICULAR THE AMOUNT
OF RAGWEED SKYROCKETED.



TODAY

VERY LITTLE OLD-GROWTH FOREST REMAINS IN THE REGION. HOWEVER, THERE IS A SMALL GROVE ALONG THE RIVER AT ARNPRIOR: GILLIES GROVE. IT IS HOME TO THE TALLEST WHITE PINE IN ONTARIO.



ANOTHER SPECIAL AREA IS THE ALFRED BOG. DUE TO ITS UNIQUE GROWING CONDITIONS, THE VEGETATION WE SEE THERE TODAY LOOKS VERY SIMILAR TO WHAT WOULD HAVE COVERED THE REGION 10 THOUSAND YEARS AGO!



Créé avec l'application  développée par la (BnF)

VIII: THE TIMBER TRADES

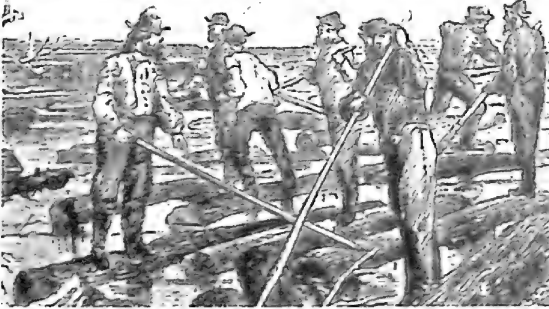
FROM: 200 YEARS AGO
TO: PRESENT

200 YEARS AGO

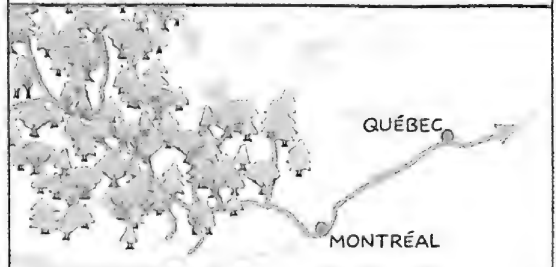
THE TIMBER INDUSTRY IN THE OTTAWA RIVER REGION BEGAN WITH DEMAND FROM BRITAIN FOR ITS WAR AGAINST NAPOLEON. THE LUMBER WAS USED FOR SHIP MASTS AND DECKS.



TREES WERE CUT IN WINTER, THEN IN SPRING THE TIMBER WAS FLOATED DOWN THE TRIBUTARIES TO THE OTTAWA RIVER.



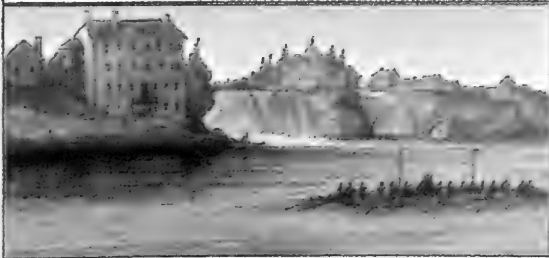
THE OTTAWA RIVER AND ITS TRIBUTARIES LINKED THE FORESTS TO THE PORTS AT MONTRÉAL AND QUÉBEC.



AT THE OTTAWA RIVER, THE LOGGERS BUILT RAFTS WITH THE TIMBER TO ROW IT TO PORT. UP TO 30 MEN COULD WORK AND LIVE ON A RAFT.

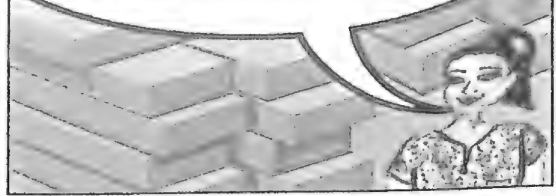


THE TRIP TO PORT WAS SLOW SINCE THE RAFTS NEEDED TO BE DISMANTLED AND RE-BUILT AT RAPIDS AND FALLS. A TRIP FROM THE UPPER OTTAWA RIVER TO QUÉBEC COULD TAKE AS LONG AS 2 YEARS.



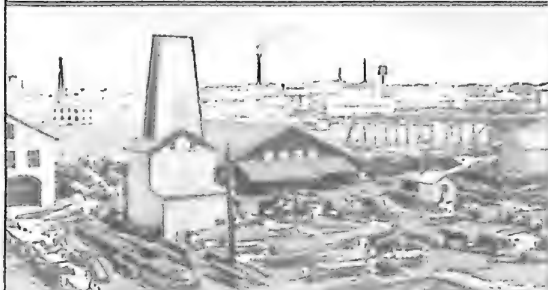
150 YEARS AGO

LUMBER DEMAND GREW FROM THE UNITED STATES AS THE NEW ENGLAND FORESTS BECAME DEPLETED. THE AMERICANS WANTED CUT PLANKS SO SAWMILLS NEEDED TO BE BUILT.

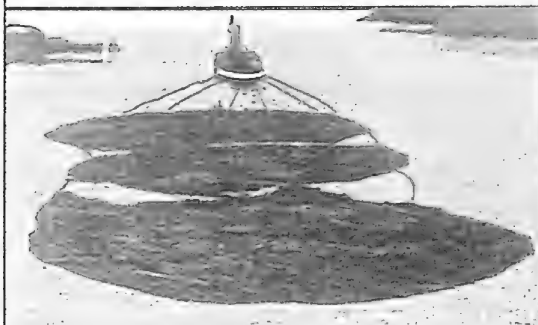


Créé avec l'application développée par la BnF

BUSINESSMEN SUCH AS E.B. EDDY AND JOHN BOOTH SET UP SAWMILLS ALONG THE OTTAWA RIVER CLOSE TO WATER-POWER SOURCES. THE BIGGEST CONCENTRATION OF MILLS WAS AT THE CHAUDIÈRE FALLS.



LUMBER PRODUCTION BOOMED. TO MEET THE INCREASED DEMAND FOR WOOD, STEAM-POWERED TUGBOATS WERE NOW USED TO BRING THE LOGS DOWNRIVER.

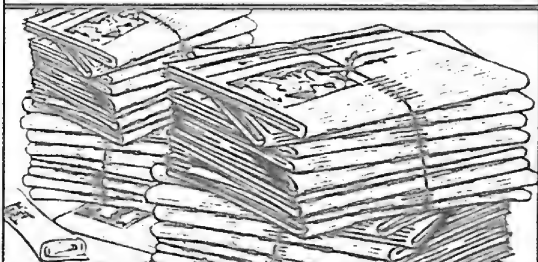


100 YEARS AGO

MILL WASTE PRODUCTS - SAWDUST, CHIPS AND BARK - WERE FODDER FOR FIRES. ONE OF THE WORST FIRES DESTROYED MUCH OF THE CHAUDIÈRE SITE AND THE HOMES NEARBY.



AFTER THIS FIRE, MANY MILLS AT THE CHAUDIÈRE FALLS WERE RE-PURPOSED TO PULP AND PAPER PRODUCTION. THIS CHANGE WAS IN RESPONSE TO THE BURGEONING AMERICAN NEWSPAPER INDUSTRY.



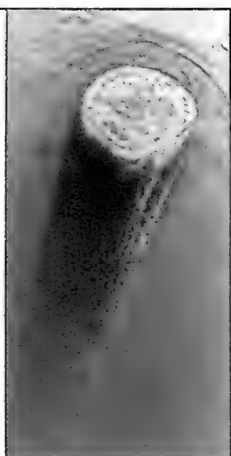
TODAY

THE DEMAND FOR PAPER IS REDUCED DUE TO DIGITAL COMMUNICATION AND ENVIRONMENTAL PROGRAMS



SEVERAL OF THE PULP AND PAPER PLANTS ALONG THE RIVER ARE NOW CLOSED

TRANSPORTATION OF THE LOGS TO THE FACTORIES IS NOW BY ROAD AND RAIL. THE TUGBOAT MADE ITS LAST JOURNEY IN 1991. HOWEVER, SUNK TIMBER AND DEADHEADS FROM THE LOG BOOMS CAN STILL BE FOUND IN THE RIVER.



Créé avec l'application développée par la BnF

IX: ANIMAL LIFE

FROM: 10 THOUSAND YEARS AGO
TO: PRESENT

DURING THE ICE AGE WHEN GLACIERS COVERED OUR ENTIRE REGION, NO ANIMAL LIFE WAS FOUND.



10 THOUSAND YEARS AGO

THE CLIMATE WAS WARMING UP AND CAUSED THE GLACIERS TO MELT. THE LAND BENEATH WAS EXPOSED AND ANIMALS BEGAN TO ARRIVE.



THE TEMPERATURE CONTINUED TO WARM AND THOSE ANIMALS SUITED TO THE CLIMATE MADE THE OTTAWA RIVER REGION THEIR HOME.

10 THOUSAND YEARS AGO



5 THOUSAND YEARS AGO



PRESENT

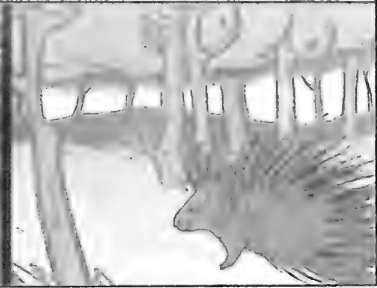
CARIBOU AND OTHER ARCTIC ANIMALS



WOLVERINE, SNOWSHOE HARE, BEAVER, BLACK BEAR ...



BEAVER, BLACK BEAR, DEER, FOX, PORCUPINE ...

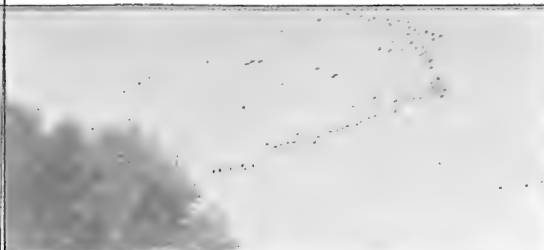


ANIMAL LIFE IS AFFECTED BY HUMAN BEHAVIOUR AS WELL AS BY THE CLIMATE. THE BEAVER ALMOST WENT EXTINCT DURING THE FUR TRADE DUE TO OVER-TRAPPING. HOWEVER, THE BEAVER POPULATION HAS RECOVERED AND IS NOW THRIVING.



Cr    avec l'application BDNF d  velopp  e par la BNF

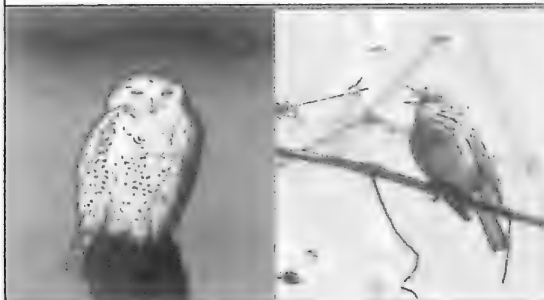
LIKE THE OTHER ANIMALS, BIRDS ARRIVED AS THE GLACIERS MELTED. SOME OF THESE BIRDS MIGRATED SEASONALLY IN SEARCH OF FOOD, WARMER WEATHER, OR LESS COMPETITION WITH OTHER SPECIES.



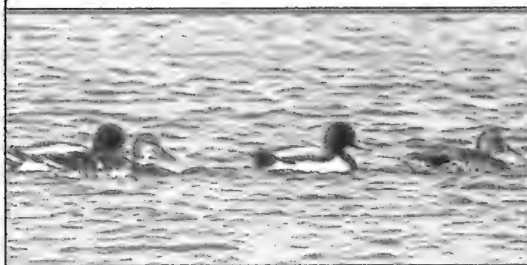
THE OTTAWA RIVER REGION NOW SITS ALONG THE ATLANTIC FLYWAY - A MIGRATION ROUTE BRINGING ARCTIC BIRDS SOUTH, AND TROPICAL BIRDS TO THE NORTH.



FOR EXAMPLE, SOME SNOWY OWLS MIGRATE FROM THE ARCTIC IN WINTER AS THE FOOD THERE BECOMES SCARCE, AND YELLOW WARBLERS COME UP FROM THE SOUTH IN SUMMER TO RAISE THEIR YOUNG IN THE INSECT-RICH FORESTS.



THE OTTAWA RIVER ITSELF IS AN INTERNATIONALLY-RECOGNIZED MIGRATION ROUTE FOR WATERBIRDS LIKE DUCKS AND GEESE. THESE BIRDS FOLLOW THE RIVER DURING SPRING AND FALL MIGRATIONS, STOPPING ON AND AROUND THE RIVER TO REST AND FEED.



THE CARDINAL USED TO BE A RARE SIGHT IN THE OTTAWA RIVER REGION. BUT BEGINNING JUST A FEW DECADES AGO, IT HAS MADE ITS HOME HERE - ATTRACTED BY THE WARMING CLIMATE AND THE MANY WINTER BACKYARD BIRD FEEDERS.



OF THE APPROXIMATELY 500 SPECIES OF BIRDS IN CANADA, ABOUT HALF CAN BE SEEN IN THE OTTAWA RIVER REGION SINCE SO MANY BIRDS PASS THROUGH DURING MIGRATION.



Cr  e avec l'application **BNF** d  velopp  e par la BNF

X: RECENT YEARS

FROM: 100 YEARS AGO
TO: PRESENT

100 YEARS AGO

THE TIMBER TRADES BROUGHT A SURGE OF WORKERS TO THE OTTAWA RIVER REGION. TOWNS AND CITIES DEVELOPED AROUND THE MILLS.



ELECTRICITY WAS REQUIRED TO RUN THE MILLS AND POWER THE CITIES, SO HYDRO-ELECTRIC DAMS WERE BUILT ALONG THE RIVER.

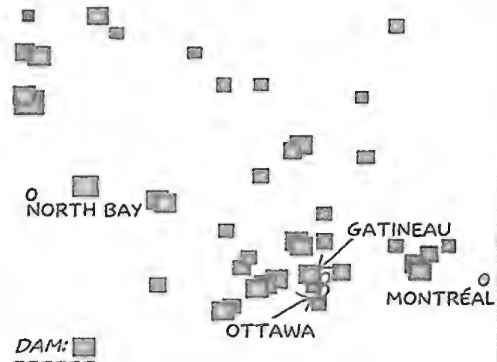


THE DEMAND FOR POWER GREW AS INDUSTRY AND POPULATION GREW.

1901 1961
POPULATION OF
OTTAWA-GATINEAU

50 YEARS AGO

BY THE MID-1960'S THERE WERE OVER 40 DAMS ON THE RIVER AND ITS TRIBUTARIES: TO GENERATE POWER, CONTROL FLOODING AND IMPROVE NAVIGATION.



HOWEVER, THE DAMS ALSO IMPEDE FISH MIGRATION, WASH-OUT HABITATS, AND AFFECT WATER TEMPERATURE AND NUTRIENTS.



AT THIS TIME TOO, THERE WAS NO SEWAGE TREATMENT FOR CITIES AND TOWNS ALONG THE RIVER. WASTEWATER WAS DUMPED DIRECTLY INTO THE RIVER.

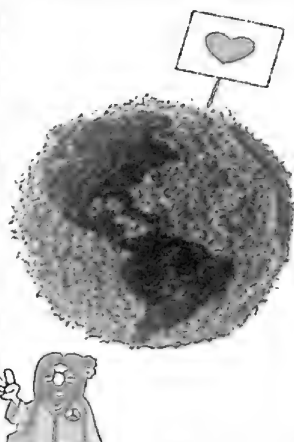


Créé avec l'application développée par la BnF

THE DRINKING WATER FOR CITIES AND TOWNS ALONG THE OTTAWA RIVER ALSO CAME (AND STILL COMES) DIRECTLY FROM THE RIVER.



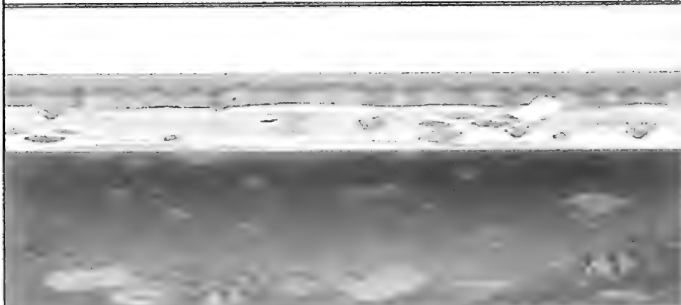
IT WAS ONLY IN THE 1960'S THAT PEOPLE BEGAN TO TRULY UNDERSTAND THE IMPORTANCE OF A CLEAN NATURAL ENVIRONMENT AND OF SUSTAINABLE DEVELOPMENT.



TODAY

MORE THAN 2 MILLION PEOPLE LIVE ALONG THE OTTAWA RIVER AND DEPEND ON IT FOR WATER AND POWER.

HOWEVER, FACTORS LIKE: POLLUTION FROM INDUSTRY, CHEMICALS USED IN AGRICULTURE, WETLAND DESTRUCTION, AND CLIMATE CHANGE ARE HARMING THE OTTAWA RIVER AND ITS PLANT AND ANIMAL INHABITANTS.




EFFORTS ARE BEING MADE TO PROTECT THE RIVER SUCH AS UPGRADING SEWAGE SYSTEMS, BANNING CERTAIN PLASTICS, CONSERVING SPECIES-AT-RISK, AND ORGANIZING RIVER CLEAN-UPS.



AS WE'VE LOOKED BACK OVER TIME, WE SEE THAT THE OTTAWA RIVER IS SO IMPORTANT FOR SO MANY REASONS. LET'S KEEP IT HEALTHY FOR WHAT THE FUTURE BRINGS!



Cr  e avec l'application  d  velopp  e par la BnF

Credits

Author

Nancy Darcovich

Editors

Jane Darcovich

Sandrine Prasil

Artwork Contributor

Sandrine Prasil

Photos and Illustrations:

Photos and illustrations used in this work are either: originals by the Artwork Contributor or Author; in the public domain (not attributed); have allowable non-commercial reproduction permission; or published under the Creative Commons License where one may share (copy and redistribute the material in any medium or format) and adapt (remix, transform, and build upon the material for any purpose, even commercially) with appropriate credit. See full license at <https://creativecommons.org/licenses/by/2.0/legalcode>.

The photos used in this publication were modified from their original form through software manipulation and cartoonizing.

- Photo by James St. John on Flickr-
<https://www.flickr.com/photos/jsjgeology/44695869355/>
- Photo by Peter Boer on Flickr-
<https://www.flickr.com/photos/minuseleven/8991804721/>
- Photo by Mike Beauregard on Flickr-
<https://www.flickr.com/photos/31856336@N03/6188521133/>
- Photo by Paleobear on Flickr-
https://www.flickr.com/photos/paleo_bear/9166509533/
- Photo by James St. John on Flickr-
<https://www.flickr.com/photos/jsjgeology/39496379294/>
- Photo by Ann Weber on Flickr-
<https://www.flickr.com/photos/136563543@N04/24049147301/>
- Photo by Mike Beauregard on Flickr-
<https://www.flickr.com/photos/31856336@N03/35992500056/>
- Photo by James St. John on Flickr-
<https://www.flickr.com/photos/jsjgeology/30328150694/>
- Photo Canadian Museum of History on <https://www.historymuseum.ca/cmc/exhibitions/archeo/kichisibi/k500-inderwicke.html>
- Photo by Mark Gobel on Flickr-
<https://www.flickr.com/photos/markgee6/90102498/>
- Photo by Bob and Diana McElroy,
<https://mcelroy.ca/bushlog/20050921.html>

- Photo by Biblioarchives on Flickr- <https://www.flickr.com/photos/lac-bac/14122576975/>
- Photo Canadian Museum of History on <https://www.historymuseum.ca/cmc/exhibitions/archeo/kichisibi/k800-6-1e.html>
- Royer, Emily, Le Site Rupestre du Rocher à l'oiseau: Palimpeste Patrimonial, Dec 2011, Fig. 12, <https://archipel.uqam.ca/4565/1/M12304.pdf>
- Photo by jeangagnon on Wikimedia- https://commons.wikimedia.org/wiki/File:Pimisi_-_22.jpg
- Photo by Paige Bollman on Flickr- <https://www.flickr.com/photos/127929506@N06/34181206825/>
- Photo by Ross Dunn on Flickr- <https://www.flickr.com/photos/rdb466/23398161172/>
- Photo by T. Tseng on Flickr- <https://www.flickr.com/photos/68147320@N02/8368922765/>
- Photo by Paul VanDerWerf on Flickr- <https://www.flickr.com/photos/pavdw/50591277758/>
- Image from Library and Archives Canada on Wikimedia- https://upload.wikimedia.org/wikipedia/commons/6/6a/Champlain_with_Astrolabe_on_the_West_Bank_of_Ottawa_River%2C_1613_by_Jefferys.jpg
- Photo by James Johnstone on Flickr- <https://www.flickr.com/photos/jetjohn/40049693952/>
- Photo by just_a_cheeseburger on Flickr- <https://www.flickr.com/photos/53199286@N00/18621107781/>
- Photo by Learn at <https://hosted.learnquebec.ca/societies/societies/new-france-around-1645/farming/>
- Photo by synspectrum on Flickr- <https://www.flickr.com/photos/epector/21908620938/>
- Photo by vastateparkstaff on Wikimedia- [https://commons.wikimedia.org/wiki/File:Birdwatching_with_grandpa_Claytor_Lake_State_Park_Virginia_\(16589750059\).jpg](https://commons.wikimedia.org/wiki/File:Birdwatching_with_grandpa_Claytor_Lake_State_Park_Virginia_(16589750059).jpg)
- Photo by P199 on Wikimedia- https://upload.wikimedia.org/wikipedia/commons/thumb/d/d4/Lemieux_Island_2.jpg/512px-Lemieux_Island_2.jpg

Bibliography

- Agriculture. (2021). Retrieved from Upper Canada Village: <https://www.uppercanadavillage.com/education/1860s-life/agriculture/>
- Algonquins Around 1500. (2021). Retrieved from Learn Quebec: <https://hosted.learnquebec.ca/societies/societies/algonquians-around-1500/>

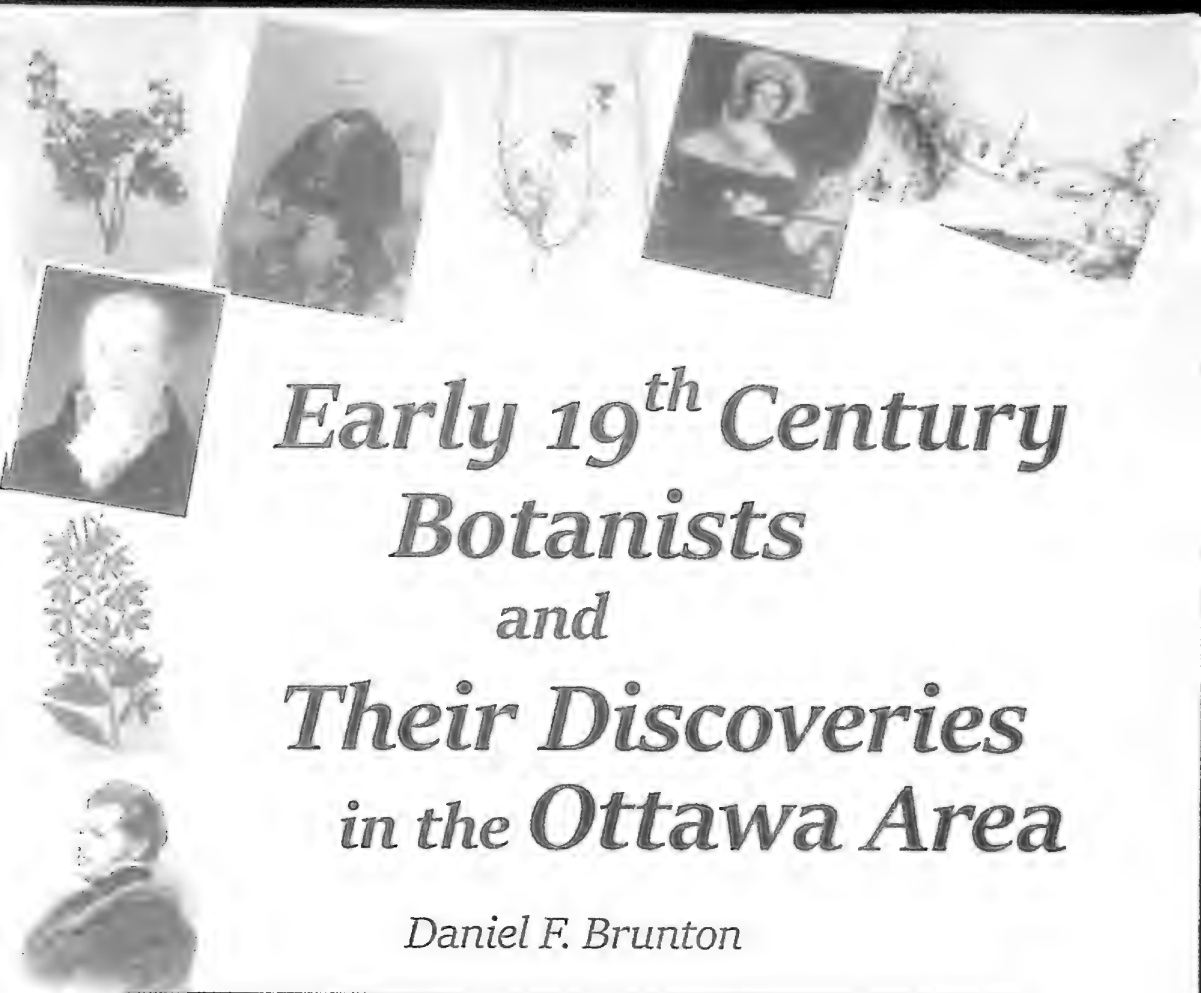
- Algonquins of Ontario. (2012, Dec). Returning Kichissippi Pimisi, the American Eel, to the Ottawa River Basin. Retrieved from Algonquins of Ontario: http://www.tanakiwin.com/wp-system/uploads/2013/10/3a-AOO_Returning-Kichissippi-Pimisi-to-the-Ottawa-River-Basin__Dec2012_20121219.pdf
- Algonquins of Ontario. (2014). Bridging the Gap Between Scientific and Aboriginal Traditional Knowledge, Traditional Knowledge Report: Volume 2. Retrieved from Algonquins of Ontario: http://www.tanakiwin.com/wp-system/uploads/2013/10/AOO_Traditional-Knowledge-Report_Volume-2_E-Version_Pimisi_Final_20140814.pdf
- Allen, W. A. (2010, November/December). Arch Notes. Retrieved from Ontario Archaeological Society: <https://www.ontarioarchaeology.org/Resources/ArchNotes/anns15-6.pdf>
- Aranason, T., Hebda, R. J., & Johns, T. (1981). Use of plants for food and medicine by Native Peoples of eastern Canada. Retrieved from Canadian Science Publications: <https://cdnsiencepub.com/doi/pdf/10.1139/b81-287>
- Aylsworth, J., Dougherty, J., & Halfkenny, B. (n.d.). A Trip Through Time - The Last Billion Years in Ottawa. Retrieved from <https://static1.squarespace.com/static/525bf175e4b00f431dc971c0/t/525ca815e4b048ac9edb6ceb/1381804053032/One+Billion+Years+of+Geology.pdf>
- Backhouse, F. (2013, December). Rethinking the Beaver. Retrieved from Canadian Geographic: <https://www.canadiangeographic.ca/article/rethinking-beaver>
- Blancher, P., Bradbury, S., Cobb, T., Fisher, C., Hannah, K., Johns, B., . . . Song, S. (2006). Canada's Boreal Forest. Retrieved from Hinterland Who's Who: <https://www.hww.ca/assets/pdfs/factsheets/boreal-forest-factsheet.pdf>
- Boreal Forest. (2006). Retrieved from Hinterland Who's Who: <https://www.hww.ca/en/wild-spaces/boreal-forest.html>
- Bruderer, B., & Salewski, V. (2008). Evolution of bird migration in a biogeographical context. Retrieved from Journal of Biogeography: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1365-2699.2008.01992.x>
- Brunton, D. (2014, Aug 8). Ecosystem Diversity. Retrieved from Ottawa Riverkeeper: <https://ottawariverkeeper.ca/ecosystem-diversity/>
- Canadian Geoscience Education Network. (n.d.). Geoscape - Ottawa-Gatineau. Retrieved from <http://www.cgenarchive.org/ottawa-gatineau-landscape.html>
- Canadian Heritage River System. (2006). Nomination Document for the Ottawa River Ontario. Retrieved from Canadian Heritage River System: <https://www.ottawariver.org/pdf/N-0-ORHDC.pdf>

- Canadian Museum of History. (n.d.). Kichi Sibi, Tracing Our Region's Ancient History. Retrieved from Canadian Museum of History: <https://www.historymuseum.ca/cmhc/exhibitions/archeo/kichisibi/kich00e.html#index>
- Canadian Museum of Nature. (2020, December 16). A whale of a find: ice-age beluga featured in Planet Ice exhibition. Retrieved from Canadian Museum of Nature: <https://nature.ca/en/about-us/museum-news/news/whale-find-ice-age-beluga-featured-planet-ice-exhibition>
- Carleton, N. (2017, November 14). Prehistoric Pakenham Whale on Display in Almonte. Retrieved from Mill Stone News: <https://www.ottawariver.org/pdf/04-ch2-2.pdf>
- Champlain Sea. (2020, September 8). Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Champlain_Sea
- City of Ottawa. (2021). Retrieved from Environment, conservation and climate: <https://ottawa.ca/en/living-ottawa/environment-conservation-and-climate>
- Coad, B. (2011, November 27). Fishes of Canada's National Capital Region. Retrieved from briancoad.com: <http://www.briancoad.com/NCR/ContentsNCR.htm>
- Donaldson, D. A. (n.d.). Geoheritage of the Ottawa River Drainage Basin. Retrieved from Ottawa River Heritage Designation Committee: <https://ottawariver.org/pdf/13-ch3-1.pdf>
- Duffy, A. (2020, July 12). The Good Sewer: Why Ottawa's \$232-million sewage storage tunnel is both an engineering marvel and an act of contrition. Retrieved from Ottawa Citizen: <https://ottawacitizen.com/news/local-news/the-good-sewer-why-ottawas-232-million-sewage-storage-tunnel-is-both-an-engineering-marvel-and-an-act-of-contrition>
- Dyke, A. S. (2007, Apr 4). Late Quaternary Vegetation History of Northern North America Based on Pollen, Macrofossil, and Faunal Remains. Retrieved from erudit: <https://www.erudit.org/fr/revues/gpq/2005-v59-n2-3-gpq1624/014755ar/>
- Environment and Climate Change Canada. (2019). Government Publications. Retrieved from An Examination of Governance, Existing Data, Potential Indicators and Values in the Ottawa River Watershed: https://publications.gc.ca/collections/collection_2019/eccc/En4-373-2019-eng.pdf
- Environment and Climate Change Canada. (n.d.). Government of Canada Ottawa River Watershed Study: A Primer. Retrieved from PlaceSpeak: https://www.placespeak.com/uploads/5492/ENG_ORWS_Primer_2018_02_01_clean.pdf
- Fiset, F., & Aylsworth, J. (n.d.). Theme Two: Deep Time: Ancient Rocks. Retrieved from Geoscape Ottawa-Gatineau: https://www.cgenarchive.org/uploads/2/5/2/6/25269392/theme7_2a_e.pdf

- Foster, J., & Eccles, W. (2013, July 23). The Canadian Encyclopedia. Retrieved from Fur Trade in Canada: <https://www.thecanadianencyclopedia.ca/en/article/fur-trade>
- Fur Trade. (2021, May 19). Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Fur_trade
- Geography of Ottawa. (2021, January 22). Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Geography_of_Ottawa
- Government of Canada. (2017, May 2). First Nations in Canada. Retrieved from Crown-Indigenous Relations and Northern Affairs Canada: <https://www.rcaanc-cirnac.gc.ca/eng/1307460755710/1536862806124>
- Government of Ontario. (1997). Forest History in Eastern Ontario. Retrieved from Landowner Resource Centre: http://www.lrconline.com/Extension_Notes_English/pdf/forhis.pdf
- Government of Ontario, Ministry of Natural Resources, Ontario Parks. (2006). Nomination Document for the Ottawa River Ontario. Retrieved from Ottawa River Heritage Designation Committee: <https://www.ottawariver.org/pdf/N-O-ORHDC.pdf>
- Halkin, S. L., Shustack, D. P., DeVries, M. S., Jawor, J. M., & Linville, S. U. (2021, February 12). Northern Cardinal. Retrieved from Cornell Lab of Ornithology, Birds of the World: <https://birdsoftheworld.org/bow/species/norcar/cur/distribution>
- Haxton, T. (2008). A synoptic review of the history and our knowledge of lake sturgeon in the Ottawa River. Retrieved from Ontario Ministry of Natural Resources: https://awsassets.panda.org/downloads/17_2008_lake_sturgeon_haxton_canada_1.pdf
- Haxton, T., & Chubbuk, D. (2002). Review of the historical and existing natural environment and resource uses on the Ottawa River. Retrieved from Ottawa River Keeper: https://www.ottawariverkeeper.ca/wp-content/uploads/2014/12/tim_haxton_report.pdf
- HBC. (2013). The Life of a Voyageur. Retrieved from HBC Heritage: http://www.hbcheritage.ca/teacher-resources/TG-HBC-Voyageur-ENG_Edited%20April%202020.pdf
- Henderson, R. (2021, April 20). Capital Chronicles. Retrieved from The Capital's Curious Archaeology: <https://www.capitalchronicles.ca/post/the-capital-s-curious-archaeology>
- Jiwa, F. (2015, Nov/Dec). The River, The People and The Industry: The damming history of the Ottawa River Watershed. Retrieved from The Leveller: <https://ottawariver.org/pdf/11-ch2-9.pdf>
- Kennedy, C. C. (1970). The Upper Ottawa Valley - A Glimpse of History. Retrieved from HWT Project: <http://hwtproject.ca/ottawa-river->

- shoreline/algonquins-champain-fort-coulonge-post/clyde-c-kennedys-the-upper-ottawa-valley-a-glimpse-of-history/
- Kerr, S. (2010, August). Fish and Fisheries Management in Ontario: A Chronology of Events. Retrieved from Ontario Ministry of Natural Resources: <https://www.ontario.ca/page/fish-management-history>
- Lambert, L. (2016, October 1). Chaudière Falls is an Indigenous Cathedral. Retrieved from Anishinabek News: <http://anishinabeknews.ca/2016/10/01/chaudiere-falls-is-an-indigenous-cathedral/>
- Land of the Spirits. (2006). Retrieved from Virtual Museum of Canada: <http://www.virtualmuseum.ca/sgc-cms/expositions-exhibitions/esprits-spirits/English/Timeline/people1845.html>
- Lougheed, S. C., & Morrill, N. (n.d.). Opinicon Natural History. Retrieved from Quaternary History of Eastern Ontario: Impacts on Physical Landscape and Biota: <https://opinicon.wordpress.com/physical-environment/quaternary/>
- Mandrak, E., & Crossman, J. (1992). Postglacial dispersal of freshwater fishes into Ontario. *Canadian Journal of Zoology* 70, 2247 - 2259.
- Marsh, J. H., & Baker, N. (2018, November 30). Ottawa River. Retrieved from The Canadian Encyclopedia: <https://www.thecanadianencyclopedia.ca/en/article/ottawa-river>
- NASA. (2002, Aug 20). Changes Since the Last Ice Age. Retrieved from Earth Observatory: https://earthobservatory.nasa.gov/features/BorealMigration/boreal_migration3.php
- Ontario Parks. (2015, July 29). 400th anniversary of Samuel de Champlain's exploration of Ontario. Retrieved from Ontario Parks Blog: <https://www.ontarioparks.com/parksblog/400-champlain-exploration-of-ontario/>
- Ottawa River. (2021, April). Retrieved from Wikipedia: https://en.m.wikipedia.org/wiki/Ottawa_River
- Ottawa River Runners. (n.d.). History of the Ottawa Lebreton Flats Area. Retrieved from Ottawa River Runners: <https://www.ottawariverrunners.com/history-topics/>
- Ottawa Riverkeeper. (2006, May). Riverkeeper River Report, Issue 1, Ecology and Impacts. Retrieved from Ottawa Riverkeeper: <https://www.ottawariverkeeper.ca/wp-content/uploads/2018/01/River-Report-English.pdf.pdf>
- Ottawa Riverkeeper. (2021). Watershed Facts. Retrieved from Ottawa Riverkeeper: <https://www.ottawariverkeeper.ca/watershed-fact/>
- Pilon, D. J.-L. (2006). Ancient History of the Lower Ottawa. Retrieved from Ontario Heritage River System: <https://www.ottawariver.org/pdf/04-ch2-2.pdf>

- Plourde, M. (n.d.). North America Before New France. Retrieved from Canadian Museum of History: <https://www.historymuseum.ca/virtual-museum-of-new-france/colonies-and-empires/north-america-before-virtual-museum-of-new-france/>
- Sarich, M., & Lalonde, M. (2019). Limits to the Regulation of the Ottawa River. Retrieved from Ottawa River Regulation Planning Board: <https://ottawariver.ca/wp-content/uploads/2020/04/2019-06-22-PembrokePublicMeeting.pdf>
- Savage, H. (n.d.). Faunal Findings at the Constance Bay Site No. 1 (BiGa-2). Retrieved from Ontario Archaeology: <https://www.ontarioarchaeology.org/Resources/Publications/oa18-2-savage.pdf>
- Suffling, R., Evans, M., & Perera, A. (2003). Presettlement forest in southern Ontario: Ecosystems measured through a cultural prism. Retrieved from Canadian Institute of Forestry: <https://pubs.cif-ifc.org/doi/pdf/10.5558/tfc79485-3>
- Swainson, B. (n.d.). Rivers at Risk: The Status of Environmental Flows in Canada. Retrieved from World Wildlife Federation-Canada: http://awsassets.wwf.ca/downloads/wwf_canadas_riversatrisk_technical_report.pdf
- The Cornell Lab. (2021, August 1). The Basics of Bird Migration: How, Why, And Where. Retrieved from All About Birds: <https://www.allaboutbirds.org/news/the-basics-how-why-and-where-of-bird-migration/>
- The Ottawa River Basin. (2021). Retrieved from Ottawa River Regulation Planning Board: <https://ottawariver.ca/information/the-ottawa-river-basin/>
- University of Waterloo. (n.d.). Retrieved from Earth Sciences Museum: <https://uwaterloo.ca/earth-sciences-museum/resources/ice-age-mammals>
- Whitlock, J. (1997). Algonquins to Atoms Along the Ottawa, A history of life and development on the Ottawa River, from copper kettles to nuclear reactors. Retrieved from The Canadian Nuclear FAQ: <http://www.nuclearfaq.ca/ottawa.htm>
- Yong, E. (2014, August 4). On the Evolution of Migration. Retrieved from National Geographic: <https://www.nationalgeographic.com/science/article/on-the-evolution-of-migration>



Early 19th Century Botanists and Their Discoveries in the Ottawa Area

Daniel F. Brunton

Dedicated to the memory of Dr. Stuart Houston (1926-2021), eminent field naturalist and OFNC Honorary Member. His comprehensive research and documentation of early natural science explorers and their pathways across Canada were remarkable. They have also been inspirational to those who have followed in *his* footsteps.

Insatiably curious botanist W.G. (Bill) Dore had a deep interest in the relationship between people and the distribution of native plants in the Ottawa Valley. A long-standing Agriculture Canada expert on grasses (Darbyshire 1998), he also wrote extensively on the history of botanical investigations in eastern Canada in general and the Ottawa Valley in particular. In one of those contributions, Dore (1983) credits British surgeon Philip W. Maclagan as the earliest collector of a vascular plant specimen in the Ottawa area: a Red Juniper (*Juniperus virginiana*) collected from the Chaudière Falls, Canada West (Ontario) in 1843. The collection was one of a series of specimens recorded that year along the route of the Rideau Canal between Bytown (Ottawa) and Kingston (Maclagan 1847). It is preserved in the herbarium of the Royal Botanic Garden in Edinburgh, Scotland (RBGE).

We recently became aware of the existence of a specimen collected in Ottawa from almost 20 years earlier, however, and this one is preserved in a Canadian herbarium. It was actually publicly reported 25 years ago, appearing in a list of early 19th century collections made mostly in the Montreal area (Pringle 1995a). When its regional significance became apparent, a deeper investigation of its history was undertaken.



Figure 1. *Bluebell* (*Campanula rotundifolia*) in flower in Kawartha Lakes, Ontario, June 2018. Photo by D.F. Brunton.



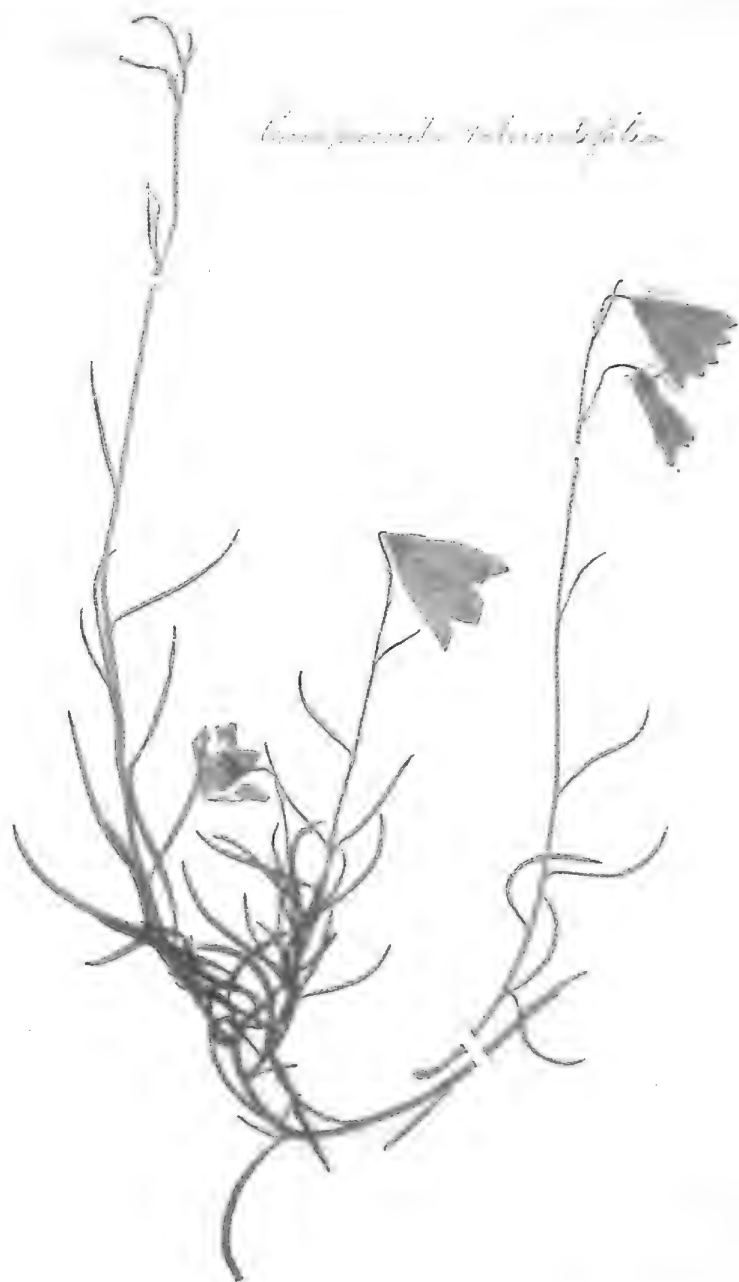
Figure 2. *Bluebell* (*Campanula rotundifolia*) in full flower in Ottawa, Ontario, Nov. 11, 2015. Photo by D.F. Brunton.

The specimen

The specimen in question is a Bluebell (*Campanula rotundifolia*), that familiar, showy, herbaceous species found commonly in dry, open, rocky ground throughout the Ottawa Valley and indeed much of Canada (Figure 1). It was collected on September 27, 1827 at the Chaudière Falls and is preserved in the herbarium of the Royal Botanical Gardens in Hamilton (HAM 60124). By that date not much of the native flora would still have been in flower.

The hardy Bluebell, however, is frequently found flowering well into autumn (Figure 2) and can still be found blooming even with snow on the ground (pers. obs.). In addition, the temperature-moderating microclimate of the landscape adjacent to a massive waterfall would likely have extended this particular plant's flowering period. Accordingly, it would be attractive for a keen botanical explorer who would know few such collecting opportunities remained in the current year.

The specimen (Figure 3) is a nicely arranged one, demonstrating the care and attention to detail of its collector. It is in remarkably good condition too, considering it is almost 200 years old. Two flowers are fully open and intact. Despite its late collection date, the leaves and flowers show no sign of severe desiccation or frost. There still is even a hint of blue colour in the lowermost of the two intact blooms. A third formerly intact bloom has been largely destroyed by insect damage, and a fourth flower is withered.



Campanula rotundifolia

Campanula of the Champlain of the Ottawa

Sept. 27. 1827

Figure 3. Christian Ramsay's 1827 Ottawa specimen of Bluebell (*Campanula rotundifolia*), the earliest known plant specimen from the Ottawa area. Photo by Royal Botanical Gardens.



Figure 4. *Christian Ramsay - Lady Dalhousie, 1837* (portrait by J.W. Gordon; Wikipedia - <https://commons.wikimedia.org/w/index.php?curid=46009780>).

The collector

The specimen was collected by Christian Ramsay (née Broun) (1786-1839), one of several mostly British field botanists resident in early 19th century eastern Canada and wives of wealthy senior colonial politicians and officials (Pringle 1995b). The “official” name of the collector will be more familiar to most readers: Lady Dalhousie (Figure 4), wife of George Ramsay, Governor General of British North America (BNA). The Dalhousies were resident in eastern Canada for over a decade, starting with his 1816 posting as Lieutenant Governor of Nova Scotia. Subsequent to Lord Dalhousie’s 1820 appointment as Governor General, they resided in southern Quebec (at Quebec and Sorel) until 1828 (Burroughs 1988). Already a keen naturalist in her native Scotland (Shteir and Cayouette

2019), Ramsay accompanied her also botanically inclined spouse on his various inspection tours across the colonies of BNA. This provided exceptional opportunities for her to expand an already substantial knowledge of plants.

In 1824, famed British botanist William J. Hooker optimistically stated that Ramsay’s “rank and influence no less than her superior acquirements and great love of science, entitles us to hope for much from her” (W.J. Hooker 1825). He was right. In addition to subsequently providing him with innumerable specimens, she enlisted and encouraged fellow colonial field botanists to do the same (Pringle 1995a). Her friends Anne Mary (Flower) Perceval (1790-1876) and Harriet (Campbell) Sheppard (1786-1858) began botanical correspondence with him in 1825 and 1826, respectively (J.D. Hooker 1902). Subsequently, these three supplied a steady stream of specimens – primarily from Quebec – that proved important in his developing *Flora boreali-americana* (W.J. Hooker 1829-1840). That work was to be the first comprehensive Flora of British North America (Pringle 1985), covering most of what is now eastern Canada. Ramsay’s botanical collaboration with W.J. Hooker continued until 1833 (J.D. Hooker 1902); she provided him with hundreds of specimens from India when Lord Dalhousie was posted there in 1828 (Shteir and Cayouette 2019). One of these, an attractive Indian fern now widely in cultivation, Hooker named Countess Dalhousie’s Spleenwort (*Asplenium dalhousiae*) in her honour (Wagner et al. 1993).

The Chaudière Falls *Campanula* was collected while Lord Dalhousie was conducting one of his periodic inspection tours to Bytown (Ottawa) to oversee work on the Rideau Canal, the most controversial, drawn out and monumentally expensive transportation project in Ottawa history. Until the current controversial, drawn out and monumentally expensive transportation project (Light Rail Transit), that is! While Lord Dalhousie and Col. John By were dealing with the logistics and politics of canal building, Lady Dalhousie would have undertaken social responsibilities – and visited the Chaudière Falls. The Falls, not yet defiled by the 1903 construction of a power dam and “in their primeval and pristine state”, were then considered “amongst the great spectacles of North America” (Eggleston 1961).

The location

Although there is no habitat information on Ramsay’s collection, the date and location (“Grand Falls of the Chaudiere of the Ottawa”) are established in a note in her handwriting at the bottom of the sheet. But that inscription begs the regionally significant question: on which side of the river was it collected? “Lower Canada” (Quebec) or “Upper Canada” (Ontario)? The modern note attached to the sheet states it to be Lower Canada, but with no evidence provided for that attribution. While much of the Falls themselves are in Quebec, most of the land about them, including all the islands and the south shore, is in Ontario. Landscape depictions from that period indicate suitable *Campanula* habitat existed throughout the Chaudière Falls area so it could have been present on either side and most likely on both.

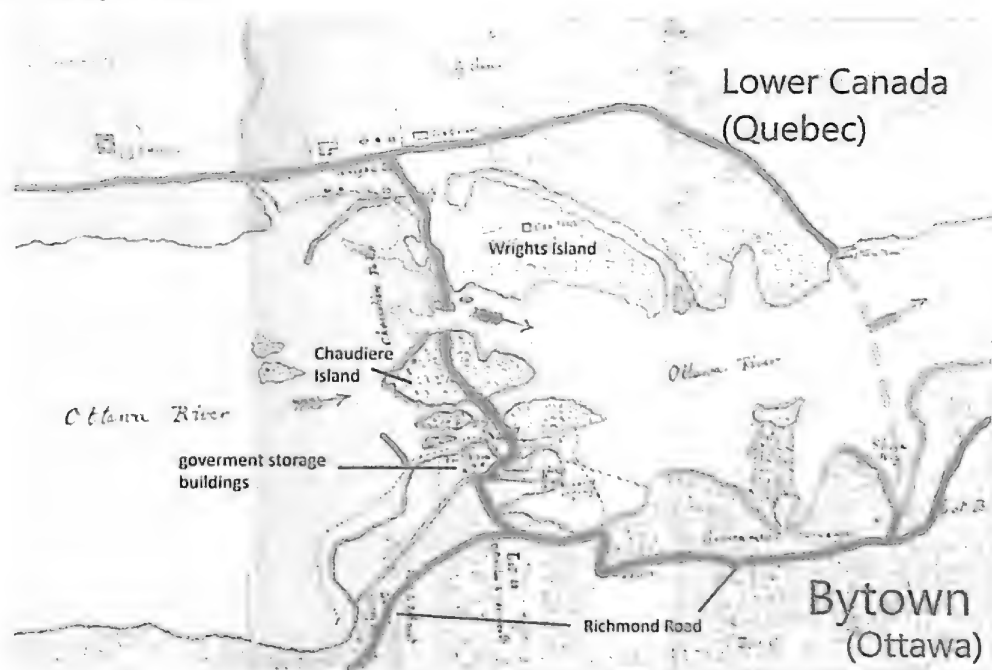


Figure 5. Chaudière Falls area, 1827; completed sections of Union Bridge and main access options from Barracks Hill emphasized (base map by Maj. G.A. Eliot, with connecting roads of 1825 map of A. Sherriff) (LAC C-3163).

Ease of access to the Falls may offer our best clue to the most appropriate provincial attribution of the collection. On the face of it, an Ontario site would seem most logical, the southern shore of the Falls being a short (1.5 km) wagon ride from the military base

on Barracks Hill (present Parliament Hill) which would have been Dalhousie's base of operations (Figure 5). But it seems the Quebec side not only offered better access to the most desirable viewing perspective onto the Great Kettle, the spectacular heart of the Falls (Bouchette 1832), but that the Dalhousies spent most or all of the day in question on the Quebec side of the river.

A substantial bridge across the Falls capable of handling heavy loads of raw material (rock, timber, etc.) from western Quebec was essential for the construction the Rideau Canal locks, and such a structure was under active construction in 1827. By the time of the Dalhousies' visit in late September, this Union Bridge (actually a series of bridges spanning the gaps between the islands), was almost complete (Figure 5). Only a footbridge erected to assist workers in building the permanent stone bridge spanned the widest gap below the Great Kettle, however. This narrow structure of some 212 feet (65 m) in length was so flimsy that the first version collapsed as it neared completion, killing three workers (Mika and Mika 1982).

It seems unlikely then, that a privileged British Countess would have been brave (or foolhardy?) enough to venture out onto such a structure just for the view or in search of plant specimens. But Christian Ramsay did just that. And amazingly, there even is a contemporary illustration of her undertaking her daredevil deed (Figure 6).



Figure 6. Lady Dalhousie and two male companions on the temporary Great Kettle footbridge, September 1827; arrow points to Christian Ramsay in the middle of the group (LAC C-2173; adapted from Mika and Mika 1982).

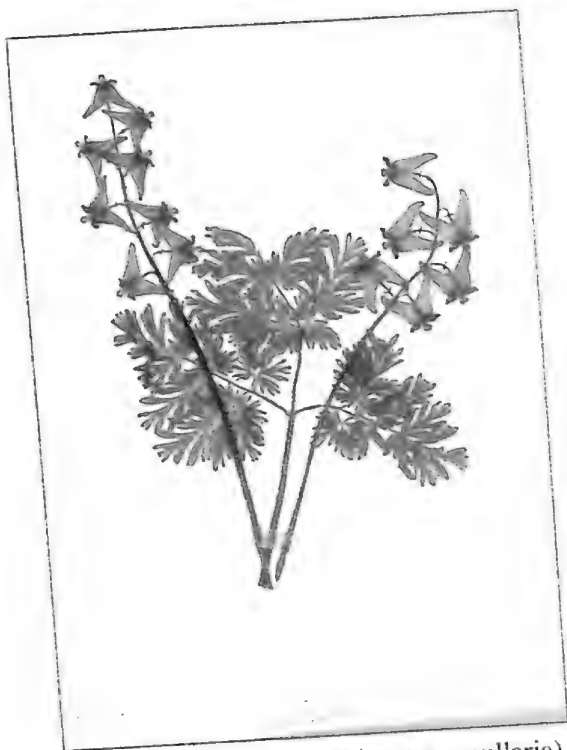
In the florid language of the day, her feat was described thusly: "We cannot forbear associating with our recollections of this picturesque bridge the heroism of a distinguished peeress [the Countess of Dalhousie] who, we believe, was the first lady who ventured across it" (Bouchette 1832). Good bet! Bouchette's account does not mention if his Lordship was one of her adventurous companions on this rope and plank contraption swaying in the spray a mere 2-3 m over the raging rapids.

The footbridge provided access – however tenuous – to the whole of the Chaudière Falls area on either shore, broadening the collecting options for the adventurous Christian Ramsay. But the Dalhousies were being hosted (at least for that day) by Hull pioneer Philemon Wright at his “Wright’s Town” residence from where the nearby “Little Chaudière [Little Kettle] may without much difficulty be approached from the Lower Canada shore” (Bouchette 1832). So despite Ramsay having access to and probably venturing into the larger area of suitable Bluebell habitat on the Ontario islands, this ease of access and better opportunity supports the RBG note contention of a Lower Canada collection site. Accordingly, Ramsay’s *Campanula* specimen was most likely taken from or adjacent to the Wright’s Town shore of the Ottawa River at the north end of the current Chaudière Bridge, at a site long since destroyed by industrial development.

Ramsay had collected a specimen of Kalm’s *Lobelia* (*Lobelia kalmia*) a few days before arriving in Bytown on their travels from Sorel (Pringle 1995a). On September 24 at “St. Ann[e] on Ottawa” (present day Sainte-Anne-de-Bellevue – Spawn 1967), she collected this uncommon species of fens and moist, calcareous shores that also flowers into late September in the Ottawa Valley (pers. obs.). This site on the western end of the Island of Montreal was likely a way-stop on the Dalhousie’s trip from their summer home at Sorel to Bytown. Perhaps the Governor General paused to inspect potential or proposed sites for a canal around the nearby, unnavigable Beauharnois Rapids? Just such a facility was operational at Beauharnois less than 20 years later. Regardless, no other Ramsay collections are known from late September 1827, suggesting the trip to Bytown was a short one.

Asselin et al. (2017) reproduced a document from the Christian Ramsay archives reporting a long list of plants (over 100 species) taken from the vicinity of the Chaudière Falls. No details are provided with the list, but the seasonality and habitat requirements of many entries make it clear these were not collected by Ramsay during her brief September 1827 visit (see discussion of Frederick Pursh on page 61).

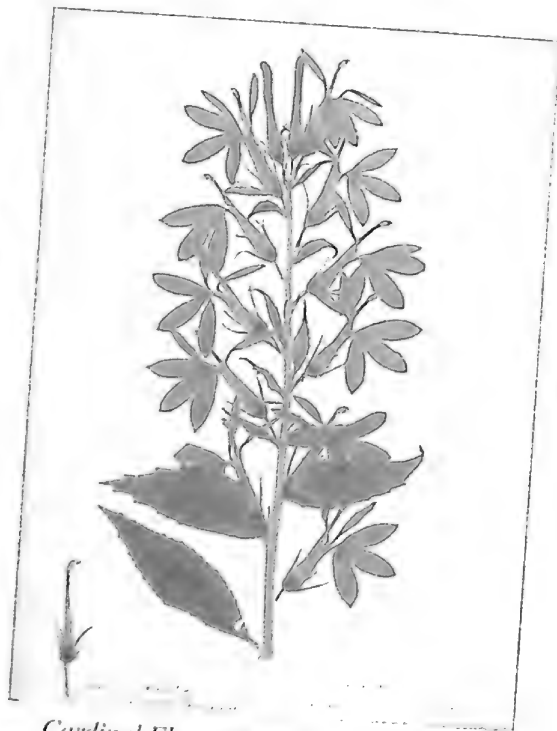
A list of specimens representing almost 400 species collected by Ramsay in 1827 and donated to the herbarium of the Literary and Historical Society of Quebec, was published shortly after she had left Canada (Dalhousie 1829). Although unfortunately unannotated, the list’s diversity demonstrates Ramsay’s considerable familiarity with the eastern Canadian flora and her willingness to venture into the physically challenging habitats (bogs, swamps, cliffs) where some of these plants occurred. However unlikely it seems that this very large list actually represents only her 1827 collections, both the *Campanula rotundifolia* and *Lobelia kalmia* are included. None of the Chaudière Falls “specialities” reported by other early collectors such as American Plum (*Prunus americana*), Fragrant Sumac (*Rhus aromatica*), Northern Arrowwood (*Viburnum rafinesquianum*) or Red Juniper (*Juniperus virginiana*) are included, however. Their absence also implies that Ramsay’s opportunities for collecting about the Chaudière Falls during the September 1827 visit may have been constrained to that one perilous venture. Regardless, Christian Ramsay’s 1827 *Campanula* specimen extends the date of the first known plant collection in the Ottawa District (and Ottawa Valley?) back at least two decades.



Dutchman's-breeches (Dicentra cucullaria)
(1823) CAN589633-211

In addition to richly representing the Sorel flora (virtually all of which are also found in the Ottawa Valley), Ramsay's herbarium is visually magnificent. Despite this being the 200th anniversary of their collection, the specimens are intact and retain their carefully arranged form and, to a remarkable degree, their natural colour as well. Photos by Lyndsey Sharp and Jennifer Doubt, Canadian Museum of Nature.

While Christian Ramsay's 1827 Blue-bell specimen is housed in Hamilton, Ontario, there is an exceptional set of her specimens held here, at the Canadian Museum of Nature. Bound within a leather-covered album are approximately 300 specimens she collected mostly in and about Sorel, Quebec in 1823. Doing this in one year would be a good feat for a contemporary botanist, let alone an early 19th century one, likely aided only by the cursory descriptions (all in Latin) of *Flora americanae septentrionalis* (Pursh 1814).



Cardinal Flower (Lobelia cardinalis)
(1823) CAN589633-26

Even older possibilities

There are intriguing possibilities of even earlier plant collections from the Ottawa-Gatineau area and elsewhere in the Ottawa Valley. That is not surprising, the Ottawa River being a gateway into interior Canada for European explorers and commercial interests since the early 1600s (Legget 1975). Curiously, at least two of these earlier possibilities date from only a few weeks or months before Ramsay made her collection. In approximately decreasing order of age, these possibilities are discussed in the following pages.

1827

Sir John Richardson (1787-1865): He was the most botanically prominent of the earlier visitors to the Ottawa-Gatineau area and is also considered to be the most distinguished of the many surgeon-naturalists active across the British Empire in the 18th and 19th centuries (Houston 2010). Richardson (Figure 7) was only briefly in Bytown, remaining here at least from August 15 to 17, 1827, (Anonymous 1827) on the last leg of the highly successful 2nd Franklin Overland Expedition. While Col. By employed the serendipitous arrival of celebrity explorer Sir John Franklin for a ceremonially laying of the (unmarked!) first stone in the Rideau Canal locks, the botanically astute Richardson would surely have wanted to explore the nearby Falls.



Figure 7. John Richardson, 1828.
(Portrait by Thomas Phillips; Wikipedia,
<https://commons.wikimedia.org/w/index.php?curid=19130819>).

Richardson was returning to Montreal with many taxonomically and distributionally important plant specimens that would figure prominently in W.J. Hooker's (1829-1840) classic *Flora boreali-americana*. Hooker (1825) had previously noted that "for zeal in collecting [Richardson] cannot be surpassed". How could such a keen collector, only a few days from completing a successful botanical adventure that he knew would be acclaimed, not take advantage to collect a few "last-minute" specimens at an already famous site? And we know he was right there for at least a few hours, as the Expedition's voyageurs would have had to make multiple trips transporting their large (7.5 m long) canoe and the group's gear over the portage that crossed the Lower Canada side of the Falls (Morse 1984). If he did make collections here, however, none are cited in *Flora boreali-americana*. Similarly, no Richardson material of "typical" Chaudière Falls species is evident among the currently digitized specimens in the Kew herbarium where the Expedition's collections were deposited. Could it be that this area's most internationally famous botanical explorer had simply had enough and was just focussed on getting back home?

Abner Benedict (1805-1854): In the spring of 1827, this young, 22-year-old botanist from New York explored the Ottawa River at least as far upstream as Lac des Chats and produced the first documentation of the vegetation and floristic character of the area (Benedict 1830). He was a recent (1826) graduate and newly established professor of chemistry and natural sciences at Rensselaer School (now Rensselaer Polytechnic Institute - RPI) in Troy, New York (Nason 1887). Bill Dore speculated (pers. comm., 1989) that Benedict might have been a relative of the pioneer Hull family of that name who farmed in Wrightville (near the north end of the present Champlain Bridge) and was combining botanical exploration with a family visit. If so, one might expect there to be some discussion of the nearby Chaudière Falls in his 1830 paper but there is none. In that brief and general article he wrote enthusiastically but vaguely of future research plans. Benedict left the scientific world a few years later and spent the remainder of his short professional career working as a lawyer in New York City.

While references to some United States collections by Benedict exist in the botanical literature (Cayouette 1998), none of his specimens could be found in the New York State (NYS) herbarium by curator Charles Sheviak (pers. comm., January 5, 1988) where historic RPI collections are preserved. Nor were there any records of his investigations in the RPI archives (pers. comm., S.B. Kennick, January 19, 1988). Accordingly, if any Ottawa Valley Benedict specimens were collected, none appear to have survived.



Figure 8. John Goldie.
(Wikipedia - <https://commons.wikimedia.org/w/index.php?curid=75858799>).

John Goldie (1793-1886):

This accomplished field botanist and, between 1837 and 1851, yet another of the correspondents of W.J. Hooker (J.D. Hooker 1902), *may* have visited the Ottawa area. In his daily diary, Goldie (Figure 8) notes that from his base in Montreal in 1818 (where he had met and probably botanized with Frederick Pursh the previous year), he “went a little way up the Otowa [sic] or Grand River, the only excursion of any length which I accomplished” (Goldie 1822). Could visiting the famous Chaudière Falls have been that “excursion of [some] length”? Such a distance (150 km) would surely not have been much to an individual who in the following year walked from Montreal across southern Ontario to Niagara Falls and *then* back to Quebec along the American side of Lake Ontario!

Goldie’s botanical diary from this period has been lost. Still, had he visited this area, might we not expect Goldie to have compared his earlier impressions and observations at these *other* famous falls, in his detailed discussion of Niagara? That his list of 60 plant species collected in Canada between 1816 and 1819 makes no mention of Chaudière Falls records (Asselin et al. 2017) also discourages the idea that Goldie’s 1818 excursion got this far.

1816-1817

Frederick Pursh (1744-1820): Pursh was an important, controversial and ultimately tragic figure in the history of North American and Canadian botanical studies. Following his production of the first catalogue of the flora of this continent, *Flora americana septentrionalis* (Pursh 1814), this American-based botanist of Russian and German origin moved to Montreal. There, between February 1816 and his death in July 1820, he worked on a *Flora of Canada*. The project did not go well. Plagued by alcoholism, other illnesses and serious financial problems, he was only able to undertake limited inventory work, construct a herbarium and work on the manuscript of his flora. Sadly, many of these specimens were lost when his herbarium was destroyed in a fire in early 1819.

William J. Hooker (1825) recounts the unplanned(?) encounter in the fall of 1819 between Pursh and prominent American scientist/editor Benjamin Silliman. In their encounter, Pursh claimed to have a substantially complete manuscript for the *Flora of Canada* in hand but expected to be working on it for a few years yet. He also claimed that in preparation of the Flora he had explored “the savage nations of the North-west [Manitoba] and around the Great Lakes” over a period of many months and under both great difficulty and personal peril, travelling first with North West Company traders (known as Nor’Westers) and then on his own. In doing this, he could not have avoided passing the Chaudière Falls, it being on the direct route that fur traders took from Montreal to Lake Superior and beyond.

But did this travel to “the savage nations” really happen? In early 1816 he was contracted to do botanical investigations in the ill-fated Hudson Bay Company (HBC)-backed Selkirk Red River Settlement in present-day Manitoba. That fell through in June due to hostilities between the HBC and the Nor’Westers. Was Pursh already on his way there with the Selkirk entourage when this cancellation occurred? Supported by the existence of some specimens of Lake Huron-centred plants believed to have been collected by him, Cayouette and Lamoureux (2002) speculate that Pursh may have accompanied Selkirk as far west as northern Lake Superior before heading off on his own. There is no direct evidence for this, however, and Voss (1978) does not mention Pursh amongst the pioneer botanist-explorers of the Upper Great Lakes. Also, the available time period seems too short to have permitted the “many months” of arduous travel and exploration he spoke of to Silliman.

Similarly, it is unlikely Pursh would have had sufficient time after mid-summer in either 1816 or 1817 to travel to those western “savage nations”. John Goldie mentions meeting him in mid-summer 1817 in Montreal (Ewan 1952). The fur trade brigades, however, typically left Montreal in May, requiring a month of gruelling non-stop travel to reach the head of Lake Superior and then, after a month of rest and the switching of loads, another month to retrace their steps back to Montreal to get back by late August (Morse 1984). It also is known Pursh travelled east in the summer of 1818, exploring Anticosti Island and Labrador.

Just the same, it seems inconceivable that so keen a collector would have been prevented by the relatively short distance between Montreal and Wright’s Town from exploring the biodiversity of the already famous Chaudière Falls at least once. Indeed, there is good evidence that he did visit and collect in our area, if not in 1816 than very likely in 1819.

In October 1825, Ann Mary Perceval (a Christian Ramsay associate) sent a list to W.J. Hooker that Pursh had given her not long before his 1820 death, reporting personal plant collections from the Chaudière Falls area (Asselin et al. 2017). In addition, W.J. Hooker (1829-1840) employed information from the Pursh manuscript, cited as “ex Pursh mss”, as the authority for a number of records in *Flora boreali-americana* (see section about William Sheppard, page 63) These also included records from the “Grande Chaudière of the Ottawa”.

The species listed in *Flora boreali-americana* from Chaudière Falls (apparently from along the portage on the Lower Canada shore) are mostly uncommon to rare “collector-attractive” local species that are still known in the vicinity (Dickson and Darbyshire 1979; pers. obs.). These include:

- Hog-peanut (*Amphicarpaea bracteata*)
- Black Huckleberry (*Aronia melanocarpa*)
- Ditch Stonecrop (*Penthorum sedoides*)
- American Plum (*Prunus americana*)
- Fragrant Sumac (*Rhus aromatica*)
- Northern Arrowwood (*Viburnum rafinesquianum*)
- Prickly-ash (*Zanthoxylum americanum*)

Two non-native species, Mouse-ear Chickweed (*Cerastium vulgare*) and Common Chickweed (*Stellaria media*), were explicitly reported in *Flora boreali-americana* as being found on the Upper Canada side of the Falls. These likely represent the earliest report of “weeds” from the Ottawa Valley and certainly from what is now Ottawa. The plants likely were collected at Bellow’s (later Richmond) Landing where the only cluster of residences on the Upper Canada side of the Chaudière Falls was located. At that time the settlement included an inn and the home of gardener Andrew Berry (Mika and Mika 1982).

Another list of Chaudière Falls area plant collections in the Christian Ramsay (Dalhousie) archives is also suspected to report Pursh collections (Asselin et al 2017). Intriguingly, it lists regional rare species Kalm’s Brome (*Bromus kalmii*), New Jersey Tea (*Ceanothus americanus*), Rock Sandwort (*Sabulina michauxii*) and Senega-snakeroot (*Polygala senega*), suggesting that globally rare shore alvar habitat might once have existed near the Falls. Also intriguing is the listing of the regionally rare to uncommon southern tree Hackberry (*Celtis occidentalis*), which is still present there (Brunton 1971).

William J. Hooker (1825) notes that many of Pursh’s Canadian specimens were sold to prominent British botanist A.B. Lambert prior to the 1819 herbarium fire; a thousand or so of these were later donated to the Royal Herbarium at Kew (Ewan 1952). Unfortunately, the few Pursh Kew specimens presently available in digitized form are undated and simply labelled “North America” and none of the digitized Pursh specimens in Kew represent any of the reported Chaudière Falls species.

Sadly, no supporting specimens exist for any of these reports. Perhaps they were all destroyed in the 1819 burning of Pursh’s herbarium? That Mary Ann Perceval was advising W.J. Hooker of them in 1825 implies the material was not in England (or at least was unknown to Hooker).

William Teasdale (1798-1862?): Abner Benedict (1830) mentions visiting William “Teasdel” (William “Tisdale” in Asselin et al (2017)) in Saint Andrews (Saint-André-d’Argenteuil) along the lower Ottawa River near Montreal in 1827 and states that he had been a frequent field companion of Frederick Pursh. Benedict was shown a *Lonicera* plant (likely Red Honeysuckle (*L. dioica*)) in Teasdale’s garden that was reputed to have been collected by Pursh from near the “Red River” (Rivière Rouge), Lower Canada. It would not be unreasonable to expect one or more of these “frequent” botanical expeditions by Teasdale and Pursh to have been to the famous Chaudière Falls, only a relatively short distance (100 km) upstream from Saint Andrews.

William Teasdale, then resident in Saint Andrews, was formally licenced as a land surveyor on December 3, 1827 (Montreal Gazette 1831) and apparently active at least into the 1850s. If his apparently considerable real estate interest in the 1830s and thereafter in the lower Ottawa Valley (as indicated by frequent mentions in the *Montreal Gazette*) extended back to Pursh’s time, he may have had a professional interest in visiting the Chaudière Falls area as talk of constructing a Rideau Canal was becoming louder in the post War of 1812 period. There is no direct evidence of that, however, nor of independent botanical activity beyond his gardening at home.

The birth and death dates for William Teasdale, from Montreal and Rigaud respectively, (J. Pringle, pers. comm., January 6, 2022) match the time period and location in discussion. They apparently represent the same individual reported by Benedict as William “Teasdel”, a name not found in records from that area and time.

1800s

William Sheppard (1784-1867): An intellectually eclectic, independently wealthy and politically powerful Quebec City resident, Sheppard played an important role in the development of the arts and natural sciences investigations in colonial Canada. He and his even more botanically talented wife, the aforementioned Harriet Sheppard, used their friendship with Pursh and with socially prominent Quebec contemporaries such as the Dalhousies, to further natural history documentation and to supply information and specimens to W.J. Hooker for his *Flora boreali-americana* project (Shteir and Cayouette 2019).

In a long and rambling paper, Sheppard (1831) describes the distribution of various native plants in Lower Canada. It documents a number of occurrences at the Chaudière Falls and elsewhere along the Ottawa River. He says of the regionally rare Red Juniper (*Juniperus virginiana*), for example, “the only localities of its growth in this province, that I know of, are at the falls of the Chats [subsequently destroyed by the development of the Chats Fall hydro dam] and the Chaudière on the River Ottawa”. Sheppard goes on to report other species such as Common Juniper (*J. communis*) “at the falls of the Ottawa”.

Where – and when – did these records originate? Did he know of the recent (1827) exploration of American Abner Benedict, the only pre-1830 botanical investigator confirmed to have reached Lac des Chats? More likely, this information was gathered by Pursh a decade earlier. Although he was involved in the timber trade, there is no evidence William Sheppard (or Harriett) had personal on-site experience in the Bytown area or beyond.

Sheppard (1831) incidentally confirmed that Pursh's *Flora of Canada* manuscript (or at least that some of it) was likely not destroyed in the 1819 fire and was in his possession. In the paper Sheppard credited several plant occurrences "on the authority of Pursh, who says [they occur on the Ottawa River] in a MS. note". In their extended correspondence with W.J. Hooker (1826 to 1844 and 1829 to 1846 respectively (J.D. Hooker 1902)), both Harriet and William Sheppard shared information from Pursh's manuscript on several occasions. That Sheppard still possessed the manuscript is also implied in his statement to other botanists in the 1830s announcing his intention of producing a *Flora of Canada* (Needler 1946). It is difficult to see how, on the basis of his limited personal explorations, Sheppard thought he could accomplish such a project without access to an information source as rich as the Pursh manuscript. Unfortunately, the Sheppards' own collections and library (presumably including the Pursh manuscript) were also destroyed by fire in 1842 (Pringle 1985).

1799

Francis Masson (1741-1805): This renowned Scottish botanist (Figure 9) finished his lengthy, globe-spanning botanical exploration career in southern Canada. While wide-ranging in his collecting, he was especially searching for new species for science (he discovered 1,700 of these!) and those potentially valuable for cultivation in Europe, such as White Trillium (*Trillium grandiflorum*) (Jarrell 1983). He arrived at Newark (Niagara-on-the-Lake) Ontario in May 1778, there in 1800 collecting the two oldest Ontario specimens known in a Canadian herbarium (the Canadian Museum of Nature): Spikenard (*Aralia racemosa* – CAN84400) (Brunton 1985) and Deer Berry (*Vaccinium stramineum* - CAN89494) (Figure 10).



Figure 9. *Francis Masson. Portrait by George Garrard, in Jarrell (1983).*

Before gathering those Niagara collections, however, at least once Masson accompanied fur traders travelling from Montreal "up the Grand [Ottawa] River [and] made the tour of the lakes" (Masson 1799). He travelled west with Nor'Westers in the spring (May) of 1799, returning to Niagara in September and ultimately Montreal by November (Pringle 1989). At least the spring passage would have taken him to the Lower Canada side of Chaudière Falls. He expressed his gratitude to the Nor'Westers "who gave me passage to the Grand Portage [head of Lake Superior] and especially Mr. McKenzie [transcontinental explorer Alexander McKenzie]" (Masson 1799).

In November 1799, Masson, who also supplied plants to such botanical luminaries as Carl Linnaeus, shipped two cases of plants and over 100 packets of seed to his patron Sir Joseph Banks (Jarrell 1983). Could some of these, especially the seeds, have been gathered on the Chaudière Falls portage? Quite likely, especially if he returned this way in August 1799 when more mature fruit/seeds would be available.



Figure 10. The two oldest Ontario specimens known in a Canadian herbarium (the Canadian Museum of Nature): Spikenard (*Aralia racemosa* - CAN84400) and Deer Berry (*Vaccinium stramineum* - CAN89494) collected by Francis Masson almost certainly in 1800. Photo by D.F. Brunton.

Masson died in Montreal in 1805 (Montreal seems to have been hard on early 19th century botanists!) leaving only fragmentary records of his Canadian activities. Few of his North American specimens, which are mostly held in the Natural History Museum herbarium in England, are represented among the digital collections of that institution.

So, were plant specimens collected from the Ottawa-Gatineau area earlier than Christian Ramsay's 1827

Chaudière Falls specimen? Almost certainly they were, at least by Pursh and probably Masson. Are there one or more of these historic collections still out there in some public herbarium or private album, unnoticed for what they represent? Perhaps; specimens by Frederick Pursh, Francis Masson or John Richardson seem to be particularly strong candidates in that regard.

The existence or even small bits of plant material such as Lady Dalhousie's *Campanula* collection indicate that appreciation and serious investigation of the natural values of this region have been ongoing for more than two centuries. And such artefacts demonstrate the great lengths some individuals were (are!) prepared to go, be they perilous journeys on foot, by canoe or dangling precariously over raging rapids, to satisfy their insatiable need to know. 🍷

Acknowledgements

My thanks to botanical historian extraordinaire James Pringle for laying the groundwork necessary for this investigation to take place, arranging for a copy of the image of the Christian Ramsay specimen and reviewing a draft of this article. The cooperation of Hamilton's Royal Botanical Gardens personnel in producing the image and giving permission for its use is greatly appreciated. In a similar vein, I am happy to acknowledge enjoyable and beneficial discussions with Jacques Cayouette of Agriculture Canada on various related historical subjects and personalities of the Ottawa Valley over the years. My thanks too for the enthusiastic assistance received from Charles Sheviak, then of the New York State Museum, Albany, NY, the late W.G. Dore of Ottawa and Sylvia Kennick of Rensselaer Polytechnic Institute, Troy, New York in gathering information on particular figures. An earlier draft of the article benefitted significantly from reviews by Holly Bickerton, Karen McIntosh and Joyce Reddoch of Ottawa. I wish to also thank Lyndsey Sharp and Jennifer Doubt from the Canadian Museum of Nature for facilitating access to and copying of images from the 1823 album.

References

- Anonymous. 2017. [letter to Montreal Gazette, August 16, 1827]. *The Historical Society of Ottawa News*, September 2017: 11.
- Asselin, A., J. Cayouette, and J. Mathieu. 2017. *Curieuses histoires de plantes du Canada 1760-1867*. Les éditions du Septentrion, Québec.
- Benedict, A. 1830. On the Vegetation of the Ottawa and some of its Tributaries (L. Canada). *The American Journal of Science and Arts* 18: 349-352.
- Bouchette, J. 1832. *The British Dominions in North America, Volume 1*. Longman, Rees, Orme, Brown, Green, and Longman, London.
- Brunton, 1971. Status of Hackberry in the Ottawa District. *Trail & Landscape* 5: 68-76.
- Brunton, D.F. 1985. Discovery of the oldest specimens of a Canadian plant in a Canadian herbarium. *The Plant Press* 3: 66-68.
- Brunton, D.F. 2005. *Vascular plants of the City of Ottawa, with identification of Significant species*, Appendix A of Muncaster Environmental Planning and Brunton Consulting Services. *Urban Natural Areas Environmental Evaluation Study, Final Report*. Planning and Growth Management Department, City of Ottawa, Ottawa.
- Burroughs, P. 1988. Ramsay, George, 9th Earl of Dalhousie. *Dictionary of Canadian Biography*. http://www.biographi.ca/en/bio/ramsay_george_7E.html [accessed December 31, 2021].
- Cayouette, J. 1998. Abner Benedict, l'homme qui a vu l'homme qui a vu Pursh. *Flora Quebeca* 3: 9.
- Cayouette, J. 2000. Pursh explore le Haut-Canada en 1816. *Flora Quebeca* 5: 6-7.
- Cayouette, J., and G. Lamoureux. 2002. *Selkirk et Pursh: aventure au far west*, in Gisèle Lamoureux, *Flore printanière, collaboration à la photographie*. Fleurbec éditeur, Saint-Henri-de-Lévis.
- Dalhousie, The Countess [C. (Broun) Ramsay]. 1829. Catalogue of Canadian Plants collected in 1827 & presented to the Literary & Historical Society, by the R.H. the Countess of Dalhousie. *Transactions of the Literary and Historical Society of Quebec Series 1, i*: 255-261.
- Darbyshire, S.J. 1998. A tribute to William George Dore, 1912-1996. *The Canadian Field-Naturalist* 112: 357-365.
- Dickson, H.L. and S.J. Darbyshire. 1979. *Biological Inventory of 23 Areas in the Ottawa Region* (Two Volumes). National Capital Commission, Ottawa.
- Dore, W.G. 1883. The First Plant Specimen Collected At Ottawa. *Trail & Landscape* 17: 128-132.
- Eggleston, W. 1961. *The Queen's Choice, a story of Canada's Capital*. Queen's Printer, Ottawa.
- Ewan, J. 1952. Frederick Pursh 1774-1820, and his botanical associates. *Proceedings of the American Philosophical Society* 96: 599-628.
- Goldie, J. 1822. Description of some new and rare Plants discovered in Canada, in the year 1819. *Edinburgh Philosophical Journal* 36: 31-322.
- Hooker, J.D. 1902. A Sketch of the life and Labours of Sir William Jackson Hooker. *Annals of Botany* 16: ix-ccxx.
- Hooker, W.J. 1825. On the Botany of America. *The American Journal of Science and Arts* 9: 263-284.
- Hooker, W.J. 1829-1840. *Flora boreali-americana, or, the botany of the northern parts of British America: compiled principally from the plants collected by Dr. Richardson & Mr. Drummond on the late northern expeditions, under command of Captain Sir John*

- Franklin, R.N. To which are added (by permission of the Horticultural Society of London,) those of Mr. Douglas, from north-west America, and of other naturalists. London, H.G. Bohn.
- Houston, C.S. 2010. *John Richardson's Contribution to North American Ornithology*, pp. 285-317 in W.E. Davis & J.A. Jackson (eds.), *Contributions to the History of North American Ornithology*, Memoires of the Nuttall Ornithological Club, Cambridge.
- Jarrell, R.A. 1983. Francis Masson. *Dictionary of Canadian Biography*.
http://www.biographi.ca/en/bio/masson_francis_5E.html [accessed December 30, 2021].
- Legget, R. 1975. *Ottawa Waterway, gateway to a continent*. University of Toronto Press, Toronto.
- MacLagan, P.W. 1847. Notice of plants collected in the line of the Rideau Canal, Canada West. *Annals of Natural History* 20: 11-14 [Plant Research Institute, Canada Department of Agriculture reproduction; 1964]
- Masson, F. 1799. [copy of a letter received by Banks from Francis Masson, November 5, 1799] Series 13.66, Sir Joseph Banks Library, State Library of New South Wales.
<https://collection.sl.nsw.gov.au/record/92ebR2NY> [accessed November 26, 2022].
- Mika, N., and H. Mika. 1982. *Bytown, the early days of Ottawa*. Mika Publishing Company, Belleville.
- Montreal Gazette. 1831. *The Lower Canada Register for 1831*. Robert Armour, Montreal.
- Morse, E. 1984. *Fur Trade Canoe Routes of Canada/Then and Now*. University of Toronto Press, Toronto.
- Nason, H.B. 1887. *Biographical Records of the Officers and Graduates of the Rensselaer Polytechnic Institute 1824-1886*. William H. Young, Troy, NY.
- Needler, G.H. 1946. The Otonabee trio of women naturalists: Mrs. Stewart – Mrs. Traill – Mrs. Moodie. *The Canadian Field-Naturalist* 60: 97-101.
- Pringle, J.S. 1985. Anne Mary Perceval (1790-1876), an early botanical collector in Lower Canada. *Canadian Horticultural History* 1(1): 7-13.
- Pringle, J.S. 1989. Botanical Exploration of the Canadian Watershed of Lake Huron during the Nineteenth Century. *Canadian Horticultural History* 2 (parts 1 & 2): 4-88.
- Pringle, J.S. 1995a. Canadian Botanical Specimens collected 1826-1828 by the Countess of Dalhousie, acquired by the Royal Botanical Gardens. *Canadian Horticultural History* 3(1): 1-21.
- Pringle, J.S. 1995b. The history of the exploration of the vascular flora of Canada. *The Canadian Field-Naturalist* 109: 291-382.
- Pursh, F. 1814. *Flora americana septentrionalis; or A Systematic Arrangement and Description of The Plants of North America*. White Cochrane and Company, London.
- Sheppard, W. 1831. Notes on some of the plants of Lower Canada. *Transactions of the Literary and Historical Society of Quebec* 2: 39-63.
- Shteir, A., and J. Cayouette. 2019. Collecting with “botanical friends”: Four Women in Colonial Quebec and Newfoundland. *Scientia Canadensis* 41: 1-30.
- [Spawn, W. (ed.)]. 1967. *Diary of a journey through Upper Canada and some of the New England States, 1819* [by] John Goldie. Theresa Goldie Faulkner, Toronto
- Voss, E.G. 1978. Botanical Beachcombers and Explorers: Pioneers of the 19th Century In the Upper Great Lakes. *Contributions from the University of Michigan Herbarium* 13, Ann Arbor.
- Wagner, W.H., R.C. Moran, and C.R. Werth. 1993. *Asplenium L.*, pp. 229-249 in, *Flora of North America Editorial Committee (eds.). Flora of North America, Volume 2: Pterodophytes and Gymnosperms*. Oxford University Press, New York.

A Quick Date with Saturn

Text and photo by Annie Bélair

I got to see Saturn for the first time in my life this past September.

It all started with the September OFNC monthly meeting, during which Howard Simkover did an absolutely amazing, informative and touching presentation about the planet. At the end, he pointed out that October 4th and 5th would be good days to see Saturn from Ottawa and told us at what time and where to look.

I admit I totally had a crush on Saturn by the time the meeting ended, so I really, really wanted to see it.

Since I don't have a telescope, I looked online for stargazing opportunities and found that the Ottawa Astronomy Friends were having a "Dark Sky Public Star Party" on Friday September 30, 2022, at the Carp Diefenbunker. I then looked at the astronomy section of timeanddate.com for info about the Ottawa night sky. It said that Saturn would rise at 4:57 p.m., set at 2:44 a.m., and cross the meridian at 9:51 p.m. on the 30th. So far, it was working out perfectly: I play volleyball in Dunrobin until 10:15 on Friday nights, so I could easily go afterwards. All I needed now were clear skies.

I arrived at the parking lot a bit past 10:30 and yes, the skies were clear! It was also very dark. Some people were already packing up their telescopes unfortunately, but I could see, barely, that some telescopes were still set up. I carefully made my way towards the closest one. I saw people who didn't seem in a hurry to leave and, uninhibited by this new crush, I simply said: "Hi, I was hoping to see Saturn."

More luck: this telescope was already pointed to it! So I looked – and there it was, so bright, so unmistakable in the night sky. Even though my date was quite distant – mute and unperturbed as it was being admired – I have no doubt it has a personality the size of a gas giant.

I took a few pictures with my camera through the eyepiece of the telescope, trying out various settings, blindly tapping buttons in the dark. I'm happy to say that it was not a total failure, as you can see from the photo on this page. It is truly unmistakable.

I wish to thank Howard Simkover, again, for his fantastic talk, and the Ottawa Astronomy Friends for having public star parties. I'd also like to thank the people there to whom I spoke in the dark, in both English and French, and whose telescope I used. Because of you, I can now say I've seen Saturn!

Merlin preys on Spotted Sandpiper

Note and photo by Manson Fleguel

We live in a newer area of Kanata-Stittsville and enjoy the walking paths around the stormwater ponds almost daily. We use eBird to document the birds we see on these walks. Merlins are often seen in this area, as are shorebirds such as the Spotted Sandpiper which breed on these ponds.

On August 1, 2022, at about 8:00 pm, as we walked on a path beside a pond just off Terry Fox drive, a Merlin flew past us over the pond at a height of about 5 meters, circled over the path, and flew back out over the pond. It then made a sudden diving manoeuvre at what appeared to be a tiny head swimming in the pond. The swimming "head" dove and the Merlin flew on out of sight. From our vantage point at about 50 meters distant, the "head" could have been that of a water snake, although we have never observed them in this area before.

Immediately after the Merlin departed, the "head" fully resurfaced and revealed a Spotted Sandpiper, which took flight without a problem and flew to a gravelly spot on shore where it joined two others.

I assume the Merlin had attempted to capture the bird as it flew across the pond, immediately prior to the event I witnessed, and the sandpiper made an evasive manoeuvre downward into the water. Swimming submerged except for its tiny head, and diving at the right moment of aerial attack, may have saved its life.

I have never witnessed a Spotted Sandpiper use diving as a method to avoid capture by a falcon. A review of literature available on the internet did not mention such manoeuvres despite many Merlin-shorebird interactions.

This observation provided new insight into the perilous lives shorebirds live. 🦉

Stormwater pond at sunset.



Dragonflies of the Ottawa-Gatineau Region

Article and photos by Chris Traynor

Species Profile 14

The Canada Darner (*Aeshna canadensis*)

Family: Aeshnidae



A fairly fresh Canada Darner (Aeshna canadensis).

The Canada Darner is a member of a group of darners that are often referred to as both the “blue” darners and the “mosaic darners”. So-called blue darners appear mostly blue when seen in flight but they are usually a mix of several colours; the term mosaic refers to the type of markings on the abdomen. Either term is a good catch-all name if you can’t readily identify the species, and that is often the case with darners. While the Canada Darner will be our featured species, we will also look at how to identify *Aeshna* darners in general as it is a group that can be quite challenging to identify beyond the family to the species level.

In our region, eight different species of *Aeshma* have been recorded:

Canada Darner
Green-striped Darner
Lake Darner
Black-tipped Darner
Shadow Darner
Lance-tipped Darner
Variable Darner
Mottled Darner

Canada Darners, which I sometimes jokingly refer to as “default” darners, may be the most common species of darner in our region. Most of the darners that I have caught in my net over the years have been this species. However, there are times in the year when other species are more readily encountered.

ID Hints

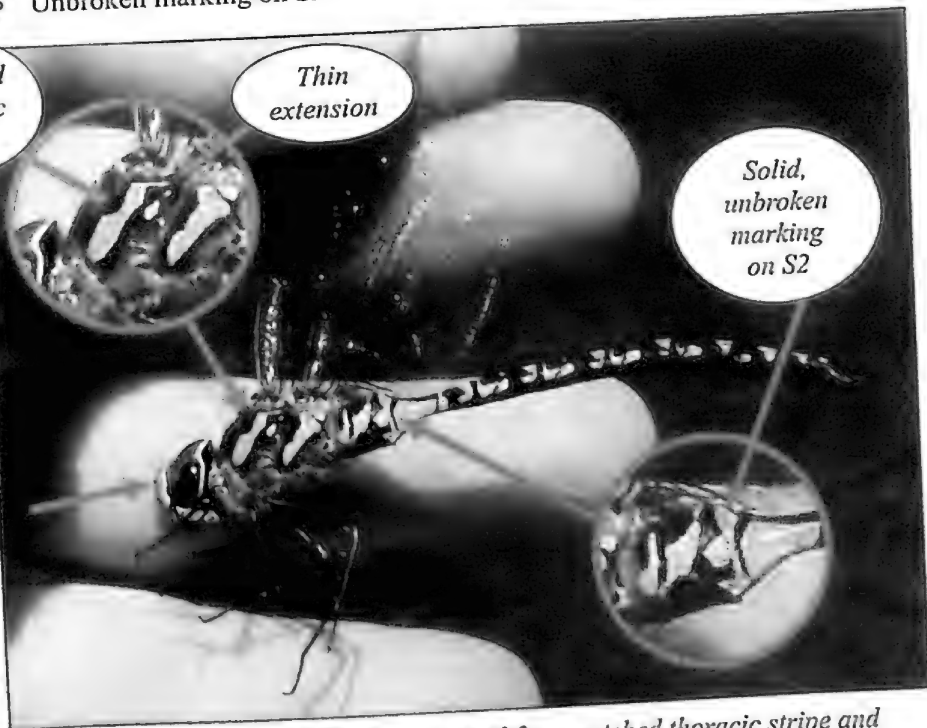
Both sexes are very similar and often indistinguishable unless examined in the hand.

- Clean, unlined face
- Strongly notched anterior thoracic stripe with thin “flag” extension
- Little to no notch on the posterior thoracic stripe
- Partial stripe in centre of S2 (see page 75 for a diagram of the segments)
- Unbroken marking on S2

Notched
thoracic
stripe

Thin
extension

Solid,
unbroken
marking
on S2



A Canada Darner. Note the unmarked face, notched thoracic stripe and thin extension or “flag” on the anterior thoracic stripe (top inset), and solid, unbroken marking on S2 (bottom inset).



A Canada Darner on a cool morning. Temperature-related colour change in dragonflies is not fully understood but it appears that some species may need to warm up before they are their usual colourful selves.

interesting species to observe on the wing. They can be quite territorial, and small fights are common amongst the darners. A benefit to the observer of such altercations is that one of the combatants is often tired out by the experience and may "hang up" for a spell to rest. Darners perch in the hanging style, or what my partner Marie refers to as the "holo rood" position. Once they hang up they can often be approached. Darners are also proficient hunters and they will usually perch when they've taken prey. Be quick to observe, however, as it is amazing how quickly a darner can dispose of a small meal.

When and Where to Look for the Canada Darner

The Canada Darner is a summer dragonfly in our region, and this species usually starts appearing in mid-July. At this time, they can be quite numerous. They have a fairly long flight period, with some still being present in early October, but these are exceptions. Canada Darners can be found throughout the day but can be increasingly numerous as the day wanes. An hour or so before dusk can be quite productive in finding darners.

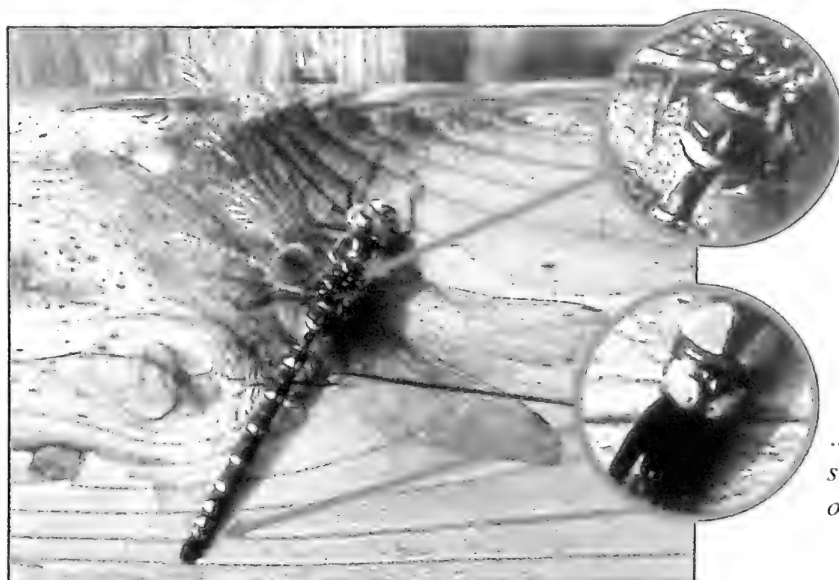
A generalist when it comes to habitat selection, Canada Darners can be found along the shores of lakes, bays, rivers and streams as well as quiet ponds and marshes. In general, any body of water can attract them. Perch preferences are many but they also appear to be attracted to wooden fences, rock and stone, and tree trunks. They do not perch on the ground. Like many of our more common dragonfly species, they can – and do – show up almost anywhere.

In my experience, the Canada Darner varies in colour more than any other species of darner. Yellow and green forms are fairly common and like many species of dragonfly, its colour can be influenced by cooler temperatures. Most striking to me was a two-tone black and grey darner that I found a number of years ago at the Mackenzie King Estate in Gatineau Park. The temperature had dipped down to about 10 °C during the night, and this particular dragon was looking rather muted while waiting for the day to warm up. It was in the early days of my interest in dragonflies and I recall being somewhat frustrated that I could not find a grey/black dragonfly in my field guides. Generally speaking, though, colour is not a good tool for identification.

Like most darners, Canada Darners spend most of their time on the wing. In my own experience, perched darners make up a very small percentage of the darners that I have seen. This can be rather frustrating when trying to photograph or identify them. I don't mind, though. They are an

Possible Confusables – Part I

While most *Aeshna* darners can be confused with each other with a limited view or when in flight, two confusable species in particular are so similar that they are often identified as Canada Darners. The Lake Darner (*Aeshna eremita*) is a slightly larger dragonfly but shares many of the same characteristics. They both have a notched anterior thoracic stripe and a similar pattern of markings down the length of the abdomen. However, there are a few subtle differences. The Lake Darner's second thoracic stripe is always more noticeably notched than the Canada Darner's. Also, the very last abdominal segment (known as S10) has dorsal markings that are mostly fused together. Lastly, second abdominal segment (S2) has a fine line in the middle of the segment. In Lake Darners, the line runs the length of the segment; in Canada Darners, it is only a partial line. Lastly, the Lake Darner has a dark line on its face.



Canada Darner.
Note the incomplete stripe down the centre of S2...

...and the two separated spots on S10.



A tattered, old Lake Darner.
Note the complete stripe down the centre of S2...

...and the fused spots on S10.

The Green-striped Darner (*Aeshna verticalis*) probably causes more confusion than any other species of darner, partly because of the name. Many species of darners have green thoracic stripes, including the Canada Darner. Luckily, there are two small differences in what are almost two identical species. At the top of the anterior thoracic stripe of both species is a slight extension that is referred to as the “flag”. It is usually fairly easy to see. In *A. Canadensis*, the flag is fairly thin, while it is much thicker in *A. verticalis*. As well, along the side of the second abdominal segment (S2) where it meets the “waist” of the abdomen, there is a marking that is generally split in the Green-striped Darner and unbroken in the Canada Darner. I will also offer up this general caveat with respect to dragonflies: when going by markings alone, you have to be extra cautious. They are merely some small pieces of the puzzle.



Green-striped Darner.
Note the thick extension
or “flag” on the
anterior thoracic
stripe...

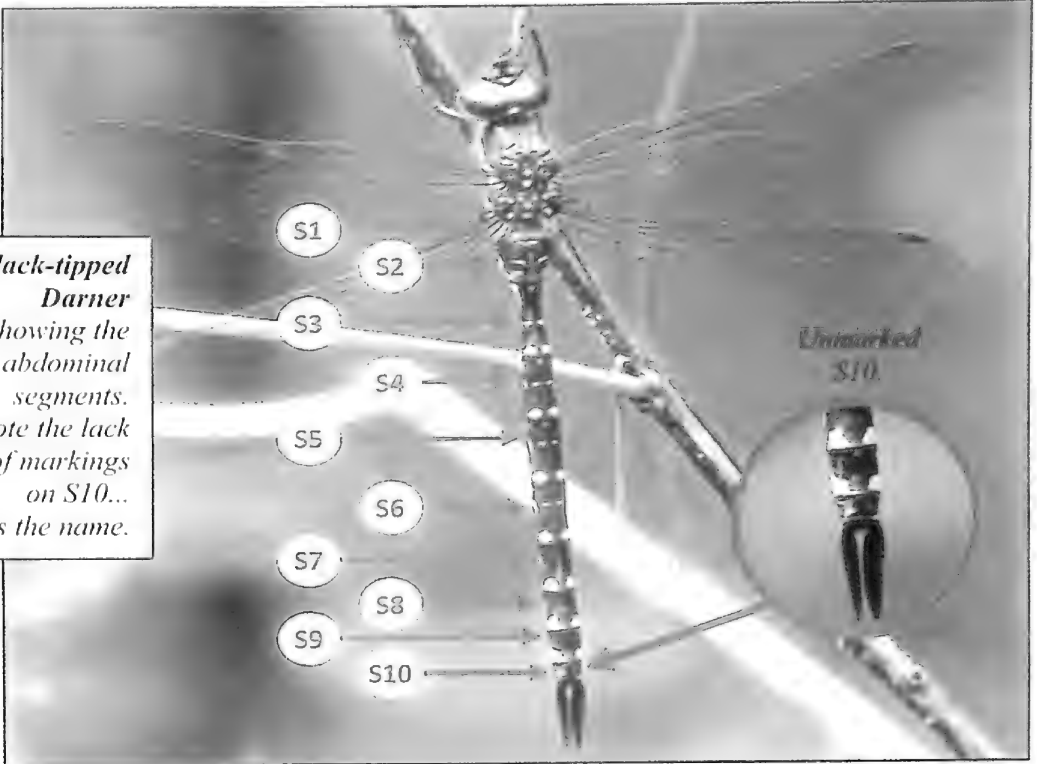
...and the broken
marking on S2.

Possible Confusables – Part II or How to Identify the *Aeshna* Darners

When dealing with possible confusables, it is important to note that broadly speaking, any one of the so-called “blue darners” (there are eleven in eastern Canada) can be mistaken for another when on the wing. And trying to identify any in flight is likely to be an exercise in frustration. Even when perched, this

family of dragonflies probably confuses people more than any other and many observers are just happy to note they saw a “darker” or “mosaic darker” without trying to carry the ID further. Luckily, here in the Ottawa-Gatineau Region, you will most likely only encounter seven (rarely an eighth) of those eleven species, making the task of identification a bit easier. We will look at four features of darners that you should always try to observe, and that should enable you to identify your subject. They are the face, the thoracic stripes, the abdominal markings and the appendages. By getting a front, side and top view, you will be able to obtain all the information you need for an identification.

**A Black-tipped
Darter**
showing the
10 abdominal
segments.
Note the lack
of markings
on S10...
thus the name.



Getting a good look at a darter's face is not always an easy thing to do, as darters are often "one and done", giving you just a quick chance to see them before they fly off. However, some are cooperative and if one sits still for you, then you should try to glimpse the face. Is the face clean or does it have a strong cross-stripe in the middle? In Photo #2, you will notice the dark cross-stripe across the face. Many darters will show a slight suture line on the face but it should not be confused with this dark cross-stripe.



Photo #2. I was lucky to be able to get above this darter to get a clear view of its face. As you can see, there is a heavy black stripe on the face. In our region, only the Lake, Variable and Mottled Darter have this line. In this case, we can also see the broken thoracic stripe that identifies this as *A. interrupta*, the Variable Darter.

Aeshna darters all have two stripes on their thorax. The shape of the stripes will go a long way in getting an ID. Generally, we just need a view of the anterior stripe. It will be notched, strongly notched or rather straight, mottled (and in one case, broken), and several will have extensions at the top of the stripe. The posterior of the two stripes can help in narrowing

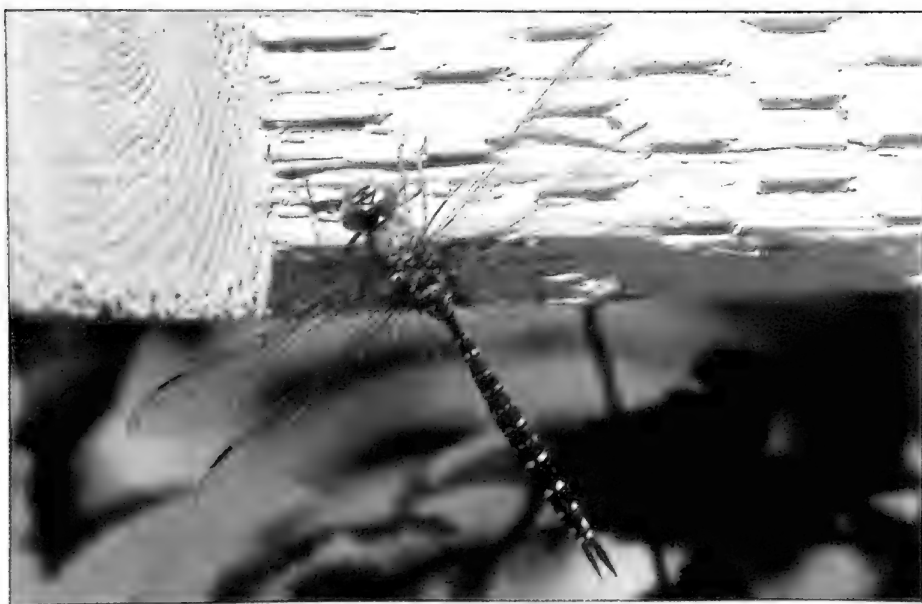
down very similar species like the Canada and Lake Darter but is not always required. We can get all this information from a good side view.



Photo #3.
This side view gives you a clear view of the thoracic stripes. We can clearly see the straight thoracic stripe of this ovipositing female **Shadow Darner**. If you can only get one view, the side view is the one that will give you the most information.

The third view is the dorsal view. This is probably the view we see most often after a darner hangs up. This angle will show us the pattern of markings down the length of the abdomen and with some luck, we may also see the shape of the appendages. Darners have two types of appendages: long, paddle-shaped ones or rounded, wedged-shaped appendages. The species that have the wedge shape have small, sharp points at the end of the appendage. Only two of our local Aeshnas, the Shadow Darner (*A. umbrosa*) and the Lance-tipped Darner (*A. constricta*) have this wedge shape.

Photo #4. This dorsal view gives us a lot of information. We can see the abdominal markings for any salient features and in this case, the shape of the appendages (paddle-shaped) is quite evident. I know this is a **Variable Darner** but this photo would not really provide enough information to identify it. This is a good example of the need for other viewing angles.



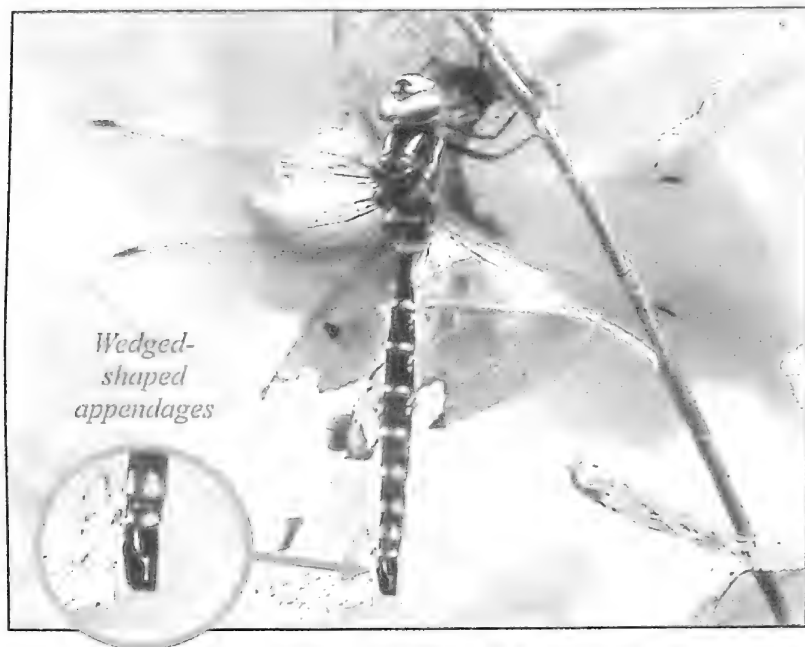


Photo #5. Sometimes you're lucky and you can get all the information you need in a single view, but it doesn't happen often. From this angle, we have a clear view of the unmarked face, and a good glimpse of the thoracic stripes and dorsal abdominal markings. Lastly, we can also see the distinct shape of the appendages, in this case, the wedge-shaped appendages of a *Lance-tipped Darner*.

Photo #6. Again, in this great angle you can see the face, thorax and appendages. In this case, the dark line on the face and the odd jumbled markings on the thorax identify this specimen as the regionally rare *Mottled Darner*.

Photo by
Jamie Spence



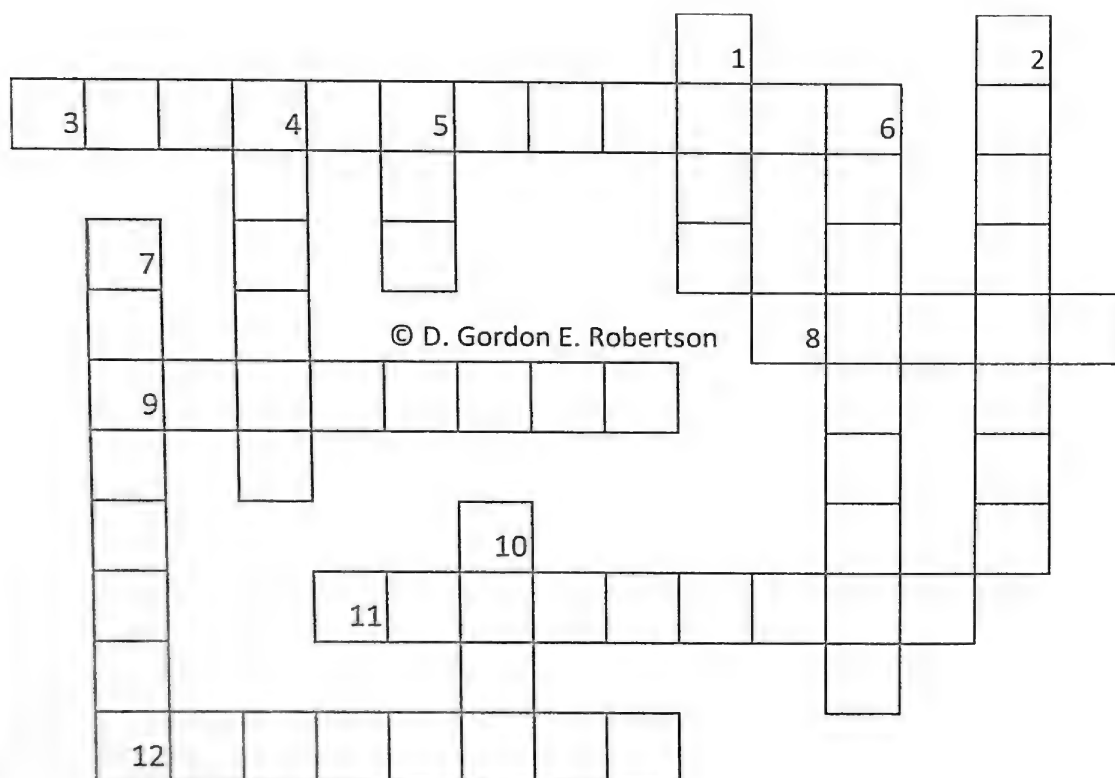
Chris's Dragonfly profiles are available on the OFNC website, ofnc.ca: go to Publications, then to *Trail & Landscape*; the list of profiles is under "Online access".

<https://ofnc.ca/publications/trail-landscape>

OFNC Warbler Crossword Puzzle

All these warblers have been found at the Fletcher Wildlife Garden.

Difficulty Level: medium. Solution on page 80.



Across

- 3 Striking black and orange face
- 8 Black and ____ Warbler
- 9 Red and black warbler (male)
- 11 Has a black cap
- 12 Type of waterthrush

Down

- 1 Coniferous warbler
- 2 "Nutty" sided warbler
- 4 Nation's warbler
- 5 "Cove" breasted warbler
- 6 From a musical town
- 7 Shade of blue
- 10 Point of land

Hint: 11 across begins with B

Gray Squirrel in Winter

Linda Jeays

February. Not spring.

Minus twenty-two in the nation's capital.

Winds light at nine. More snow on the way.

In a fork of the mature silver maple tree
Squirrel is sitting snug in an old bird box,
its enlarged opening bitten and chewed
for easy entrances and quick exits.

Earlier in the season there was a leaf nest
tethered to upper branches, but heavy rain
and strong winds tore it to pieces, so grasses,
mosses and bits of bark were squeezed
into the elongated wooden cavity,
gradually furnishing a new residence.

Squirrel used to chatter at folk who ventured
near the neglected corner of the garden,
but now there is a quiet face soaking up
sunlight under the picture-perfect sloping roof,
and an inquisitive tongue from time to time
tastes snowflakes trapped on the front porch.

Watch a while and Squirrel will emerge abruptly
from the makeshift shelter, run down a fragile branch,
leap to sturdy high wires, negotiate tangled spruces
and scurry down a handy hydro pole on the journey
to the neighbours' well-stocked backyard feeder.

Occasionally, Squirrel takes the land route back,
pausing to disappear headfirst into soft snow
(bushy tail sticking up, waving farewell),
in an attempt to retrieve acorns from a cache
prudently buried in the fall against a hard winter.

February. Not spring, but forethought and patience,
resilience and an extra smidgen of good luck,
prove major advantages in dealing with
the fierce challenges of a hostile climate.

Photo by Christine Hanrahan





Coming Events

Please check the website regularly, ofnc.ca, to see a list of upcoming events, and sign up to receive monthly event listings by emailing membership@ofnc.ca.

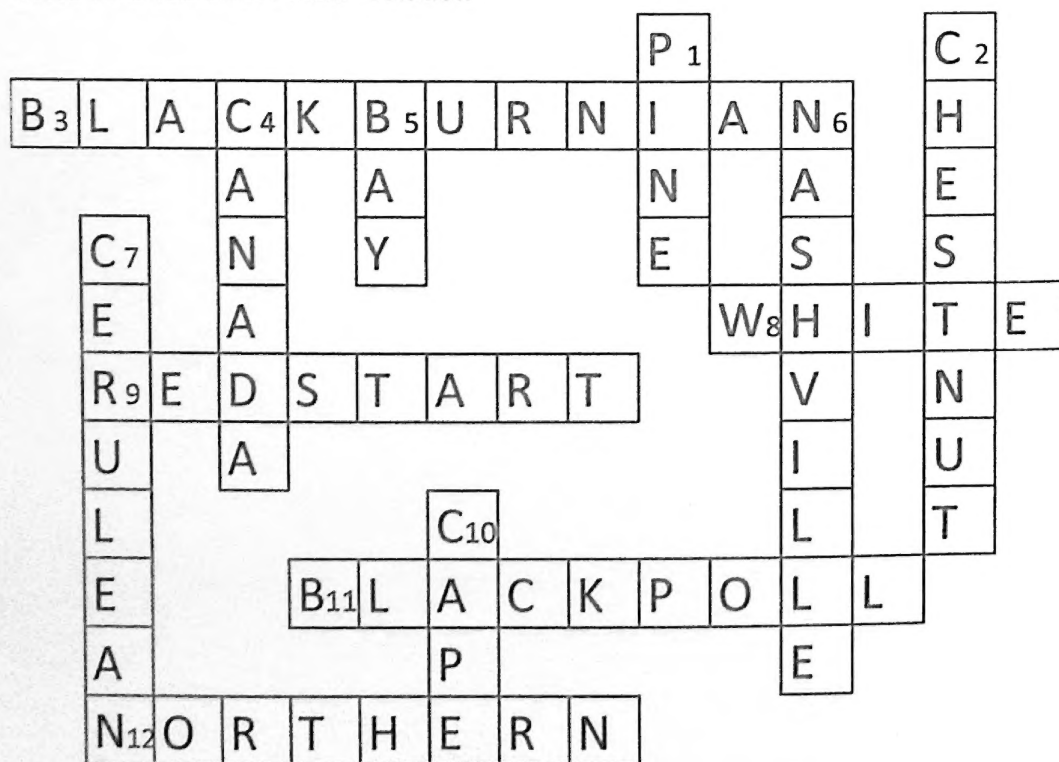
Monthly meetings will remain online for the time being.

The more recent issues of *Trail & Landscape* are available a few months after publication on OFNC.ca.



ofnc.ca/publications/trail-landscape/tlpdfs

OFNC-FWG Warblers Puzzle - solution



Articles for *Trail & Landscape*

DEADLINE: Material for the April-June issue must be in the editor's hands by **February 1, 2023**.

ADVERTISING IN *TRAIL & LANDSCAPE*

The OFNC will accept advertisements in *Trail & Landscape* for products and services deemed to be directly related to the activities and mandate of the Club.

See OFNC website for rates and specifications:

ofnc.ca/publications/trail-landscape/advertising-in-trail-landscape

15% discount if the principal owner of the business is a member of the OFNC.

For all questions and submissions, please contact the editor:

Annie Bélair

annie.TandL@gmail.com

613-832-7802

Vous pouvez m'écrire en français également.

www.ofnc.ca



**Find archived issues of *Trail & Landscape* at:
www.biodiversitylibrary.org**



**Ottawa Field-Naturalists' Club
Club des naturalistes d'Ottawa**

ISSN 0041-0748



TRAIL & LANDSCAPE

Published by

THE OTTAWA FIELD-NATURALISTS' CLUB

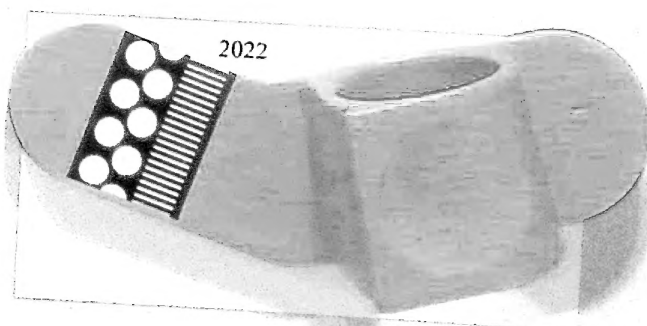
Postage paid in cash at Ottawa

Change of Address Notices and Undeliverable Copies:

Box 35069, Westgate P.O.

Ottawa, K1Z 1A2

Return postage guaranteed



Printed by
LOMOR PRINTING